6.0 RECOMMENDED PLAN

6.1 Preferred Design

Yonge Street is the central transportation spine within North York Centre, which is lined by transit-based employment and residential growth as envisioned in the City's Official Plan and North York Centre Secondary Plan. Today, within the Study Area, the Yonge Street corridor is focused on vehicular travel at grade, with inconsistent, or substandard, pedestrian infrastructure (i.e. pedestrian clearways), no cycling facilities, and a lack of consistent public realm and streetscaping. The recommended plan will transform Yonge Street to accommodate all modes of transportation, including improved pedestrian and cycling facilities.

The recommended plan transforms the streetscape and public realm along Yonge Street to incorporate all modes of transportation - pedestrians, cyclists, transit users, and motorists - between Florence Avenue/Avondale Avenue and Bishop Avenue/Hendon Avenue. This plan includes wider pedestrian clearways, new signalized crossing opportunities, street trees and enhanced plantings (including landscaped medians), dedicated unidirectional cycle tracks, and opportunities for public art and street furniture. The existing through traffic lanes on Yonge Street, from Sheppard Avenue to Finch Avenue, will be reduced from 6 to 4 lanes. On-street parking will be provided where space permits.

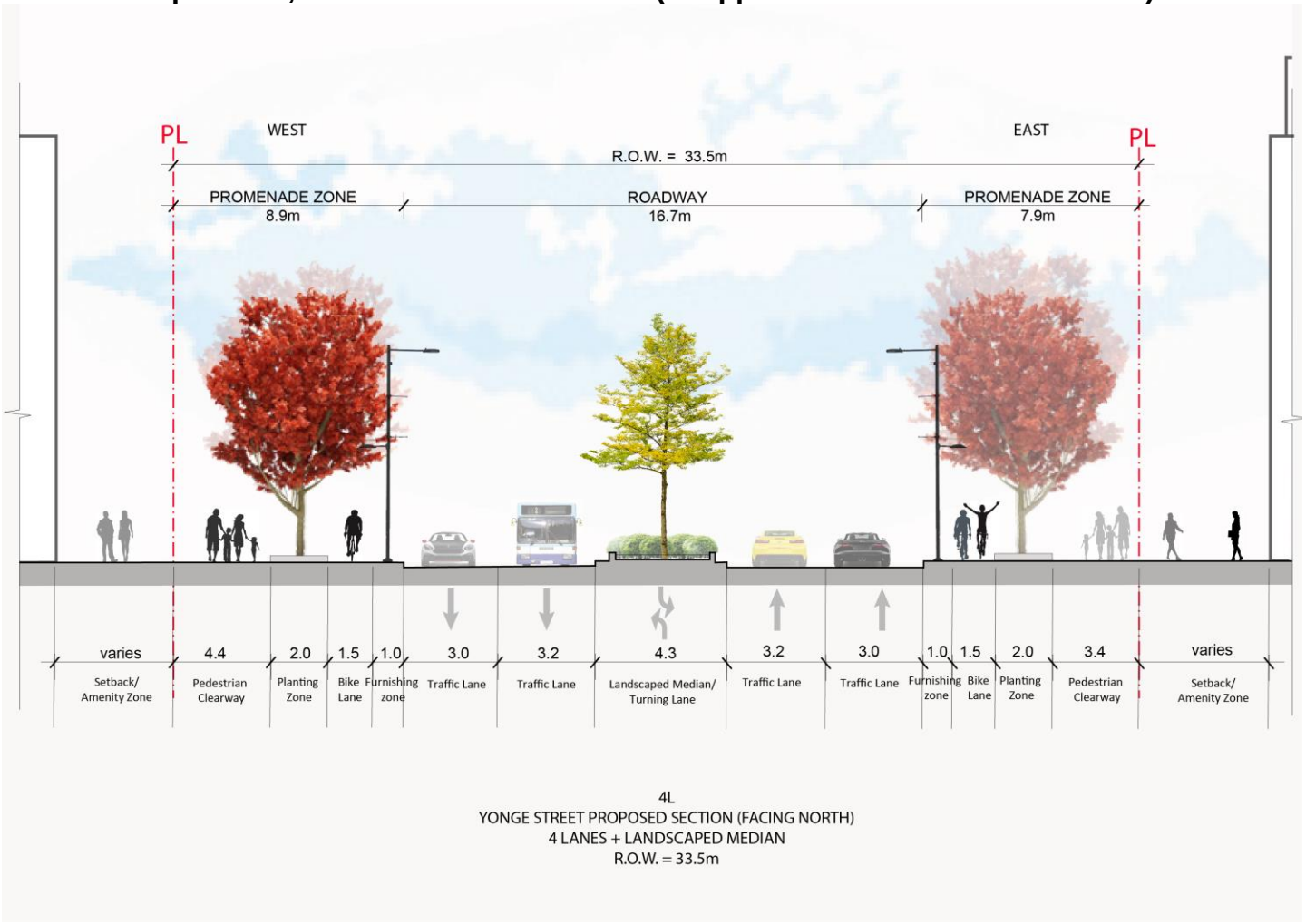
The cross-sections for the recommended Yonge Street plan are shown in **Exhibit 6-1**, and key design features are described in the following sections. As detailed in **Section 5**, Design Option 4A will be implemented south of Sheppard Avenue, and Design Option 4B will be implemented from Sheppard Avenue to Finch Avenue. The design plates for the proposed design are provided in **Appendix K**.

Option 4A retains the existing six-lane cross-section south of Sheppard Avenue to the Highway 401 interchange, but introduces a centre planted median, extending the concept from the original Secondary Plan south; this is expected to assist in managing traffic flows. In addition, one-way cycle tracks (at the level of the pedestrian clearway) are planned to provide secure cycling infrastructure. Wider, more consistent pedestrian clearways on both sides of the street will improve the environment for walking.

North of Sheppard Avenue, the cross-section will narrow to four through lanes, with the cycle tracks, wider pedestrian clearways and centre median continuing to Finch Avenue. Laybys for parking (or possibly loading) will be provided in select locations. The cycle tracks and wider clearways continue north of Finch to Hendon Avenue; additional lanes are proposed here for turning movements and TTC buses.

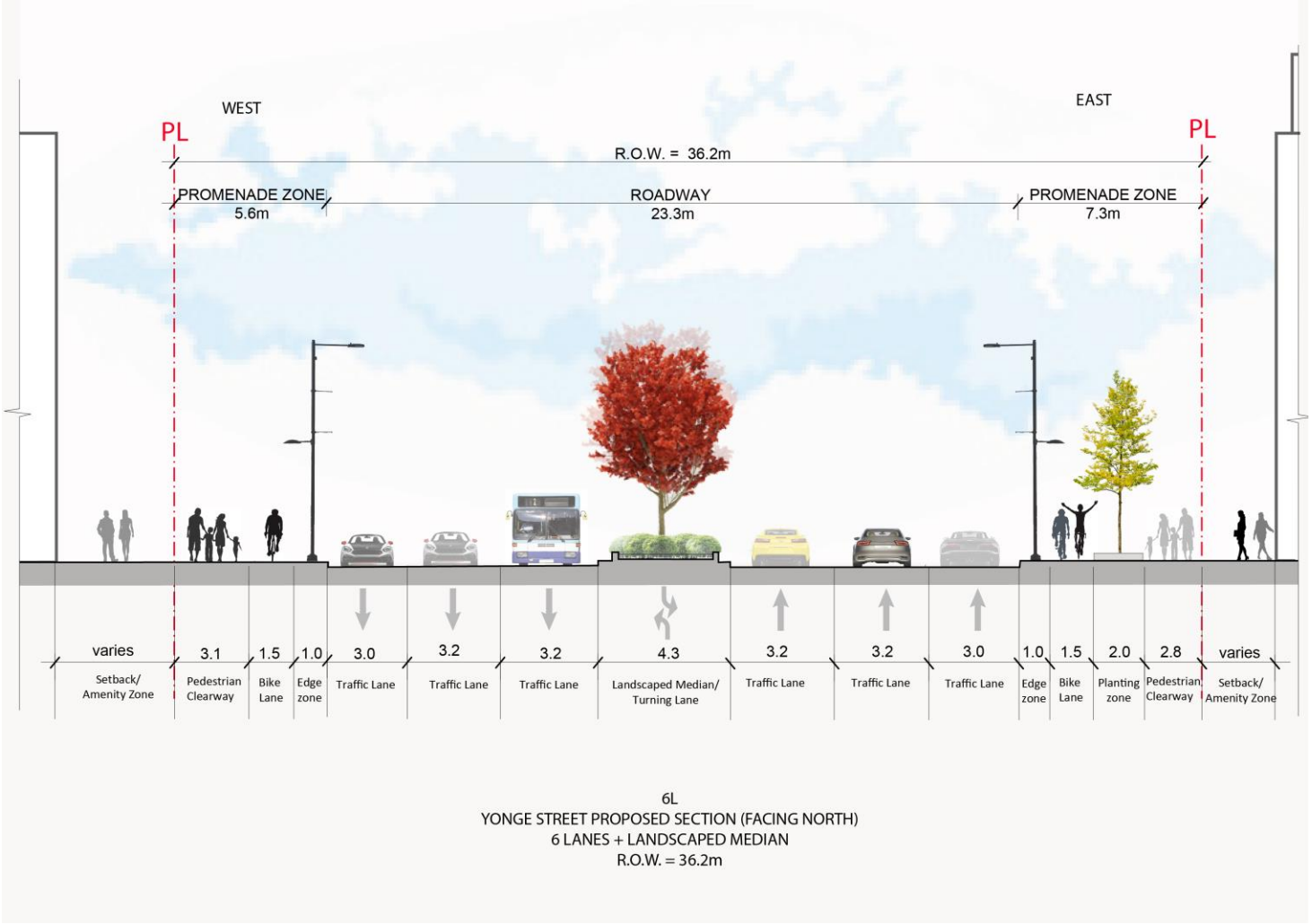
Exhibit 6-1: Recommended Plan Cross-Sections

Option 4B, Four-Lane Cross-section (Sheppard Avenue to Finch Avenue)



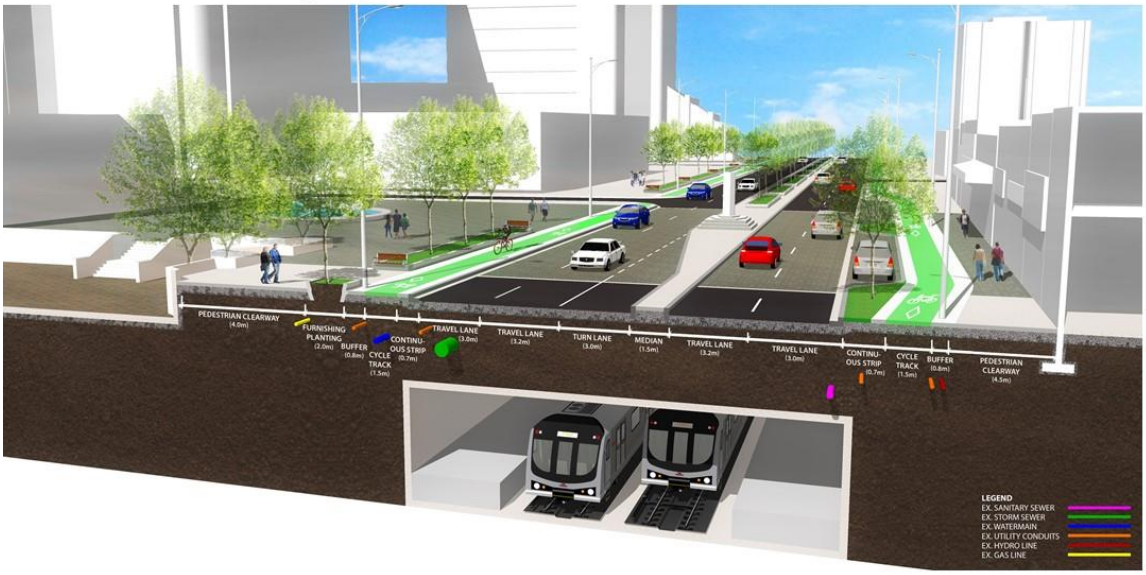
(Note: parking bays and other location-specific treatments not shown)

Option 4A, Six-Lane Cross-section (Sheppard Avenue to Anndale Drive)

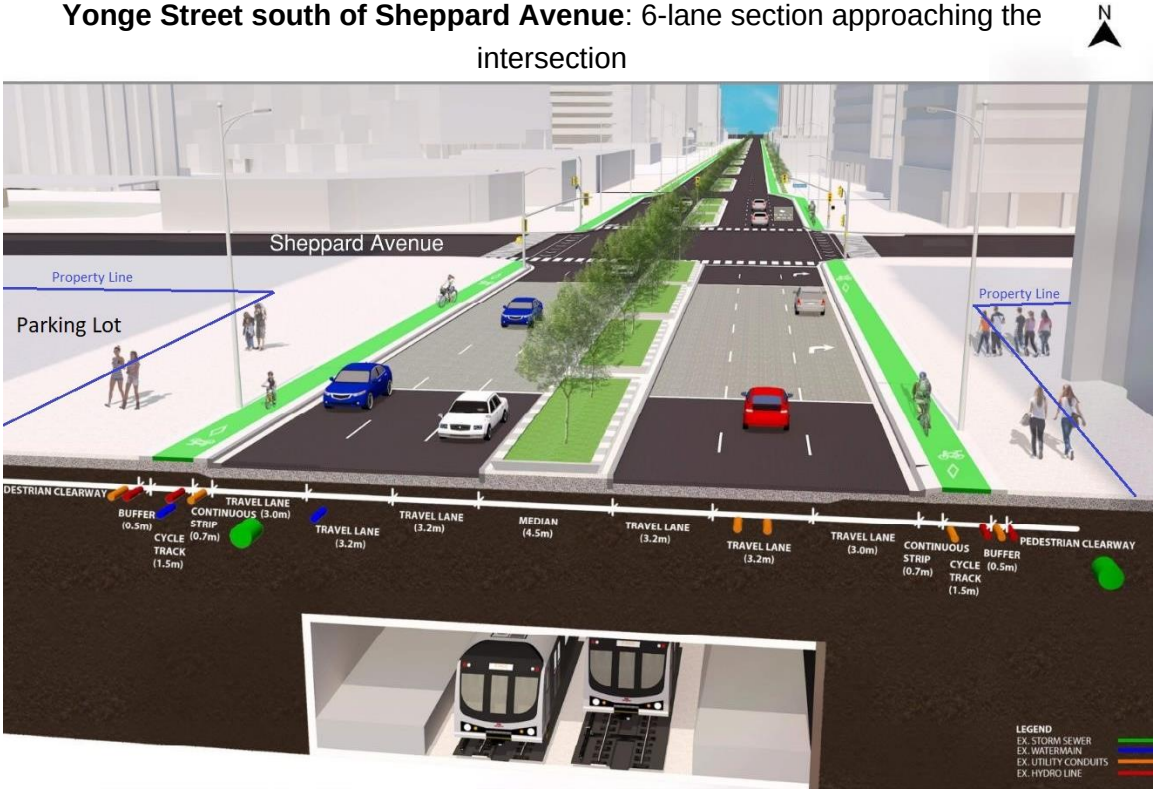


6L
YONGE STREET PROPOSED SECTION (FACING NORTH)
6 LANES + LANDSCAPED MEDIAN
R.O.W. = 36.2m

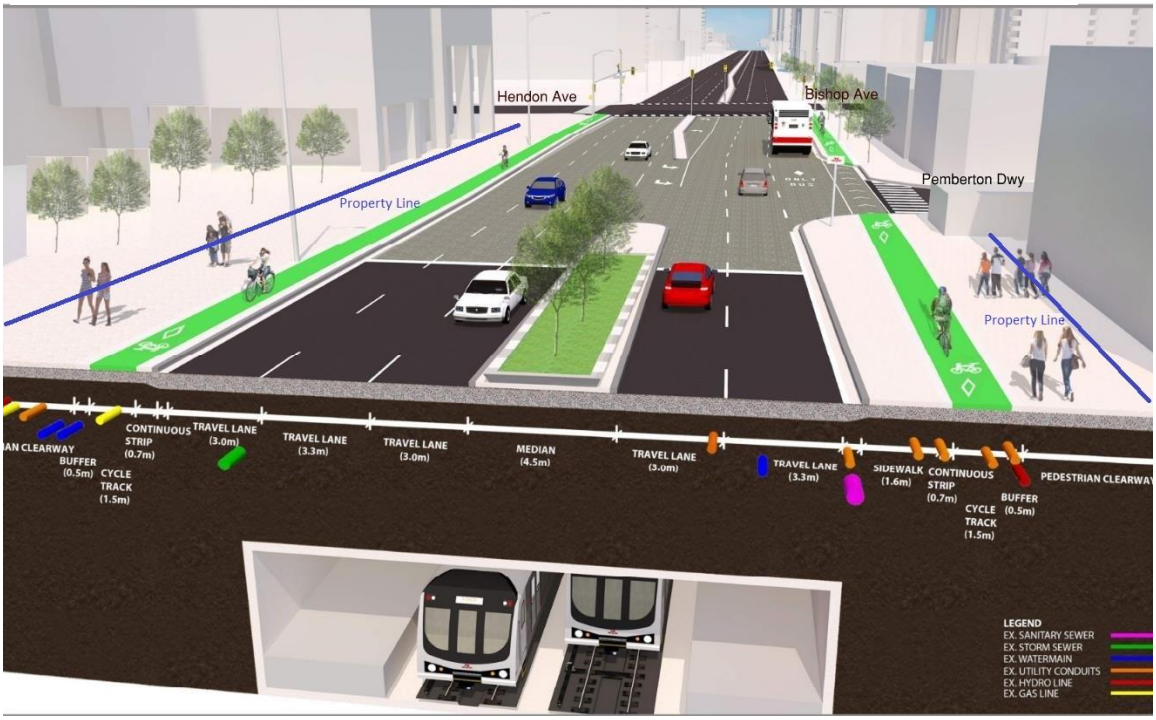
Conceptual Rendering of Transform Yonge – Looking Northbound along Yonge Street North of Greenfield Avenue: Midblock 4-lane section illustrating on-street parking opportunities



Conceptual Rendering of Transform Yonge – Looking Northbound along Yonge Street south of Sheppard Avenue: 6-lane section approaching the intersection



Conceptual Rendering of Transform Yonge – Looking Northbound along Yonge Street mid-lock between Finch Avenue and Bishop/Hendon Avenue: Midblock 6-lane section illustrating bus lane and left-turn opportunities



6.1.1 Pedestrian Infrastructure

Among the primary objectives of this Environmental Assessment (EA) is improving the pedestrian realm. This includes pedestrian clearway enhancements to create a consistent pedestrian realm (described further in **Section 6.2.2**) and opportunities to cross Yonge Street safely.

As shown in **Exhibit 6-2**, there are locations along Yonge Street where pedestrian crossings are limited. In the northern half of the corridor, there are currently large gaps between signalized intersection crossings. The largest of these are:

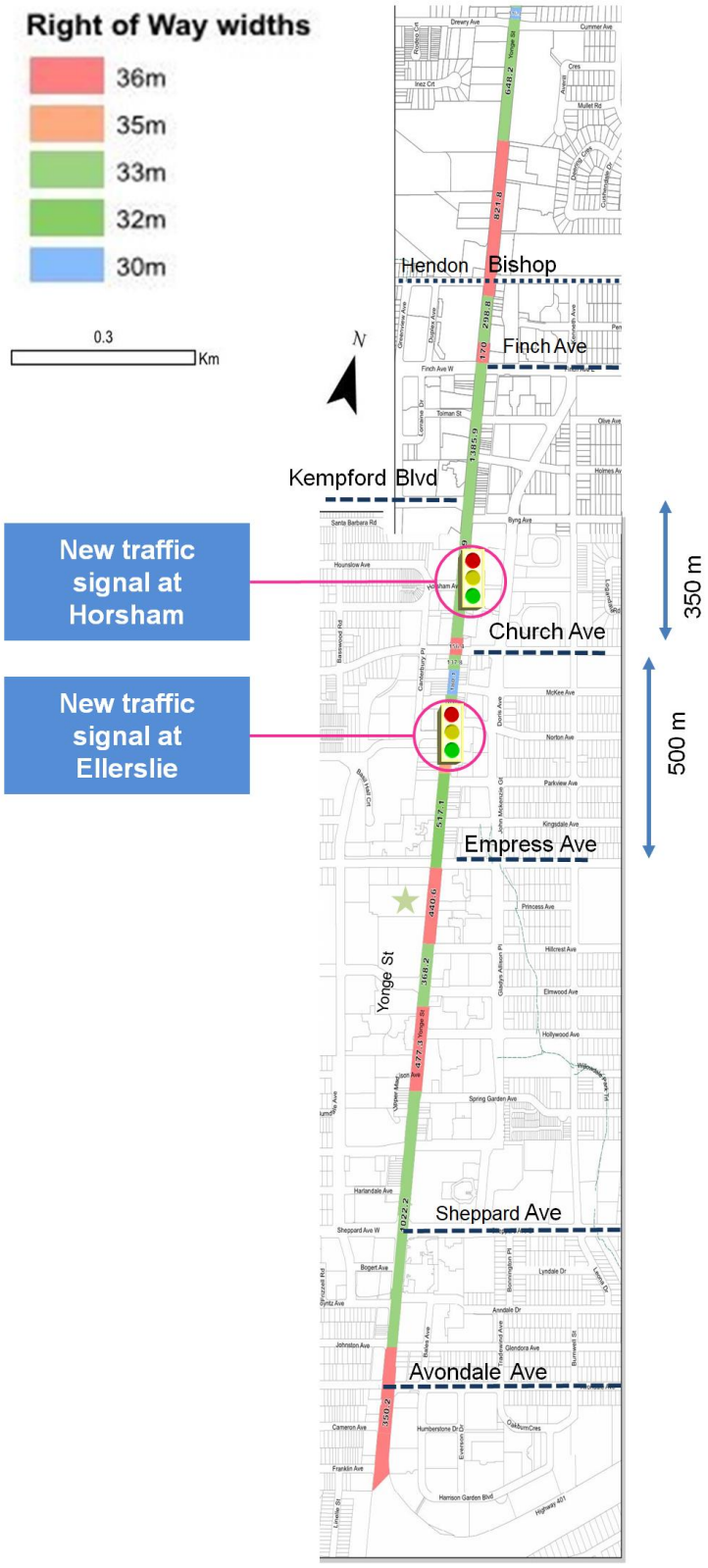
- A 350 metre gap between Churchill Avenue/Church Avenue and Kempford Boulevard to the north; and
- A 500 metre gap between Churchill Avenue/Church Avenue and Park Home Avenue/Empress Avenue.

To reduce these gaps, it is recommended to signalize the intersections of Yonge Street at Horsham Avenue/Northtown Avenue and at Ellerslie Avenue. The signalization of these intersections has been assessed in the microsimulation modelling for Yonge Street, and the impact of these changes is negligible.

An extension of the existing landscaped median, in accordance with the North York Centre Secondary Plan, is also proposed wherever the existing central left-turn lanes are expected to be underutilized and the left-turn movements can be accommodated elsewhere.

The improvement of pedestrian crossing opportunities across Yonge Street will enhance connectivity in the area from Doris Avenue to Beecroft Road. Consideration to introducing new signalized intersections along Doris Avenue and Beecroft Road to facilitate east-west travel from Yonge Street to parks and other destinations on the east and west sides should be further explored.

Exhibit 6-2: Proposed intersection signalization and spacing of signalized pedestrian crossings



This plan recommends that all gaps in the pedestrian clearway network within the Study Focus Area, as identified in **Section 3.5.5**, be filled wherever practical to enhance connectivity.

6.1.2 Cycling Infrastructure

Analysis undertaken for this EA identified that a high proportion of trips by all modes within the Study Area are short (typically between 1 km – 5 km). The City of Toronto's Cycling Network Plan scored Yonge Street through North York in the highest category for delivering value to the City's overall cycling network and estimates the potential cycling demand for the corridor to be in the range of 3,001 to 9,500 daily bicycle trips.

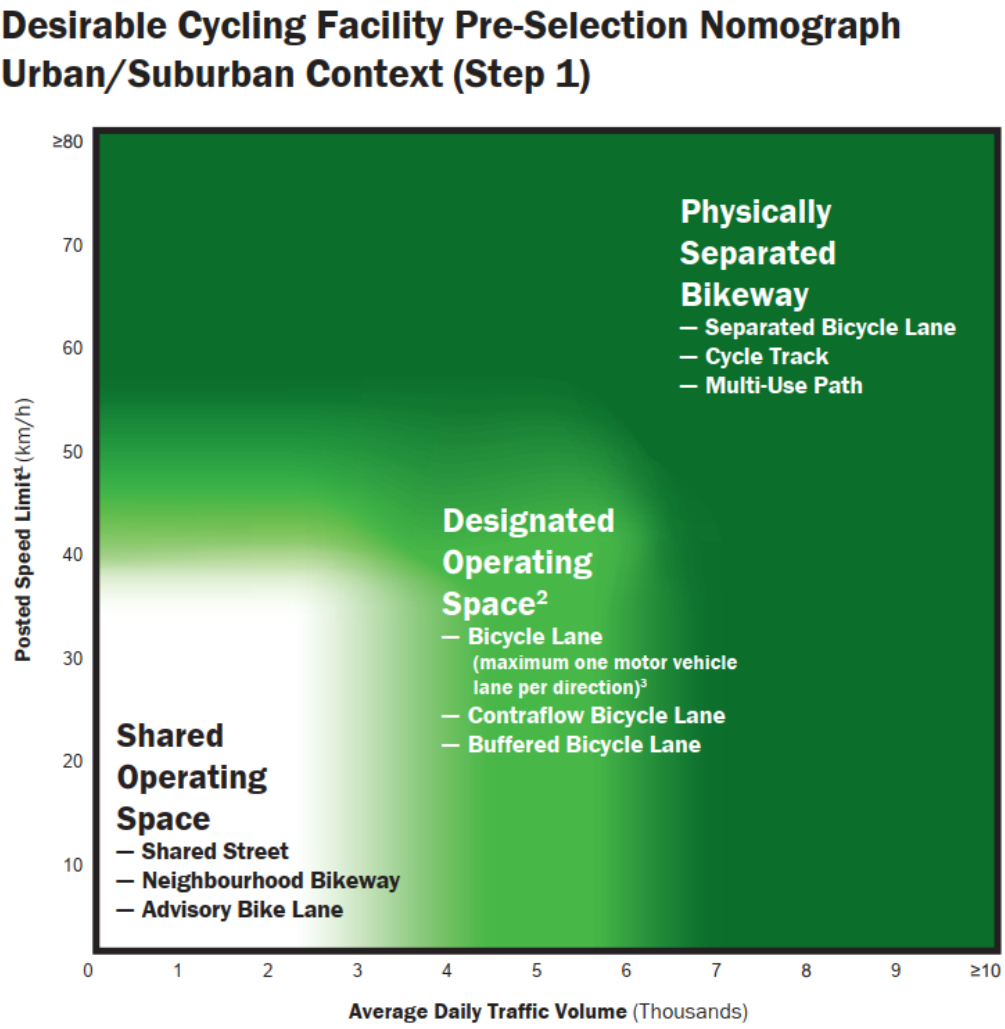
Although some cycling activity has been observed on and around the corridor, few of those trips are currently made by bike. This can be attributed in large part to the current lack of cycling facilities. Research highlighted in Ontario Traffic Manual (OTM) Book 18 (2021 edition) shows that around 60% of the population would consider cycling if there were safe and connected cycling facilities. This represents an opportunity to implement a continuous cycling facility along the length of the corridor to attract more cycle-based trips.

OTM Book 18 includes a facility type selection tool that considers the relative appropriateness of marked, "designated" facilities (such as conventional bicycle lanes), physically separated facilities (such as raised cycle tracks) or streets on which cyclists share the roadway with motor vehicles. The "pre-selection" stage of the process considers Average Daily Traffic (ADT) volumes and the motor vehicle posted speed.

Exhibit 6-3 illustrates the desirable bicycle facility pre-selection nomograph. Based on the expected average daily traffic (approx. 30,000) and posted speed (50 km/h), and the assumption that the operating speeds will be consistent with posted speeds, the result is a clear recommendation for a "physically separated bikeway". This could include separated bike lanes, cycle tracks, or a multi-use path. As the volume of pedestrians is anticipated to be very high, a multi-use pathway is deemed an unsuitable facility type. As the project involves a roadway reconstruction, cycle tracks are preferred over separated bicycle lanes as they can more easily be incorporated into the public realm.

For one-way cycle tracks on a street with a posted speed limit of 50 km/h, OTM Book 18 identifies a desired facility width of 2.0 – 2.5 metres (1.5 metre minimum) and a horizontal buffer width of 0.6 – 1.0 metres (0.3 metre minimum, excluding the width of the curb). Where the cycle track is adjacent to on-street parking, the minimum buffer width is 0.6 metres to distance cyclists from the hazard of opening doors. To provide a detectable separation between the cycle track and pedestrian clearway, OTM Book 18 recommends the use of either a cane-detectable curb, a continuous detectable tactile buffer strip, or continuous landscaping and street furniture.

Exhibit 6-3: Desirable Bicycle Facility Pre-Selection Nomograph (OTM Book 18)



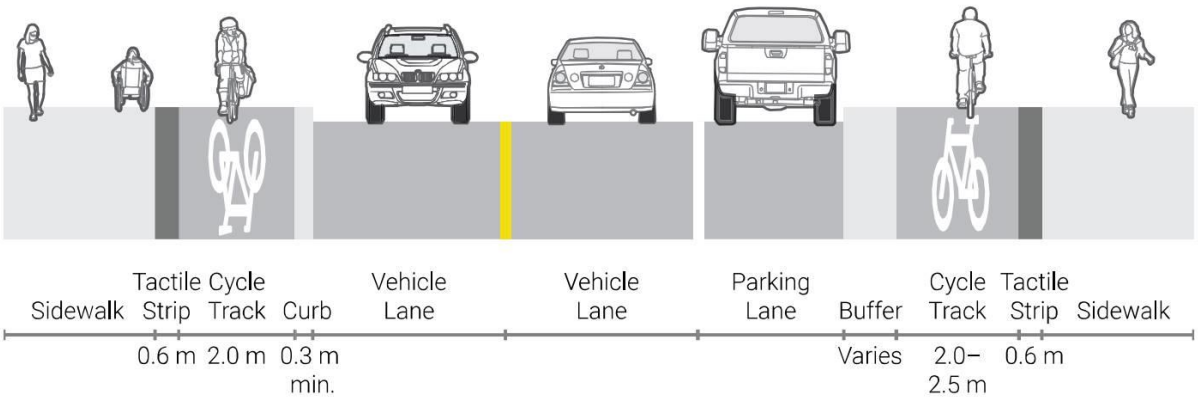
1 Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.
2 Physically separated bikeways may always be considered in the designated operating space area of the nomograph.
3 On roadways with two or more lanes per direction (including multi-lane one-way roadways), a buffered bicycle lane should be considered the minimum with a typical facility being a physically separated bikeway.

The review of OTM Book 18 also indicates that the existing "Shared Street" (identified in white on the nomograph in **Exhibit 6-3**) condition is not appropriate for cyclists due to the speed and volume of motor vehicles on Yonge Street.

This plan recommends the implementation of raised, unidirectional cycle tracks similar to the indicative cross-section shown in **Exhibit 6-4**. This features a barrier curb and buffer zone between the curb lane and cycling facility, offering enhanced protection to cyclists. The buffer between the cycle track and pedestrian clearway (shown in green in **Exhibit 6-4**) will be paved and surfaced with a detectable, tactile material and will accommodate street lighting and/or trees, as shown in **Exhibits 5-9** and **5-10**.

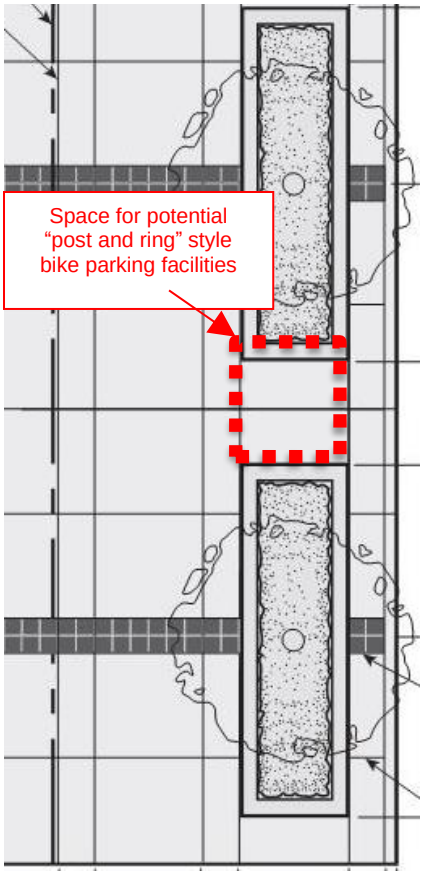
The City of Toronto is finalizing a Bikeway Design Guide that improves upon past standards and further confirms the need for physically separated cycling facilities on arterial roadways such as Yonge Street. The forthcoming Guide will be used to inform the detailed design stage of this project.

Exhibit 6-4: Cycle track



As demand for cycling increases, so too will the need for bike parking, and it is recommended that the City proactively install new racks and “post and ring” stands outside destinations and, in particular, subway stations and bus stops. More broadly, there are opportunities to incorporate these throughout the corridor, as shown in **Exhibit 6-5**. At the detailed design stage, the City should work with the Toronto Parking Authority to identify suitable locations for Bike Share station(s) along Yonge Street.

Exhibit 6-5: Bicycle parking opportunities



Cycling Connections

With unidirectional cycle tracks on each side of Yonge Street, the study reviewed the available east-west routes for connections, along with other opportunities to connect to proposed routes in the City’s Cycling Network Plan. In 2019, the City updated the Cycling Network Plan to include a long-term vision, which identifies many additional cycling routes in the study area. These connections and potential opportunities are illustrated in **Exhibit 6-6**. The City will continue to prioritize and assess the deliverability of bikeways, further building out the cycling network in this area over time.

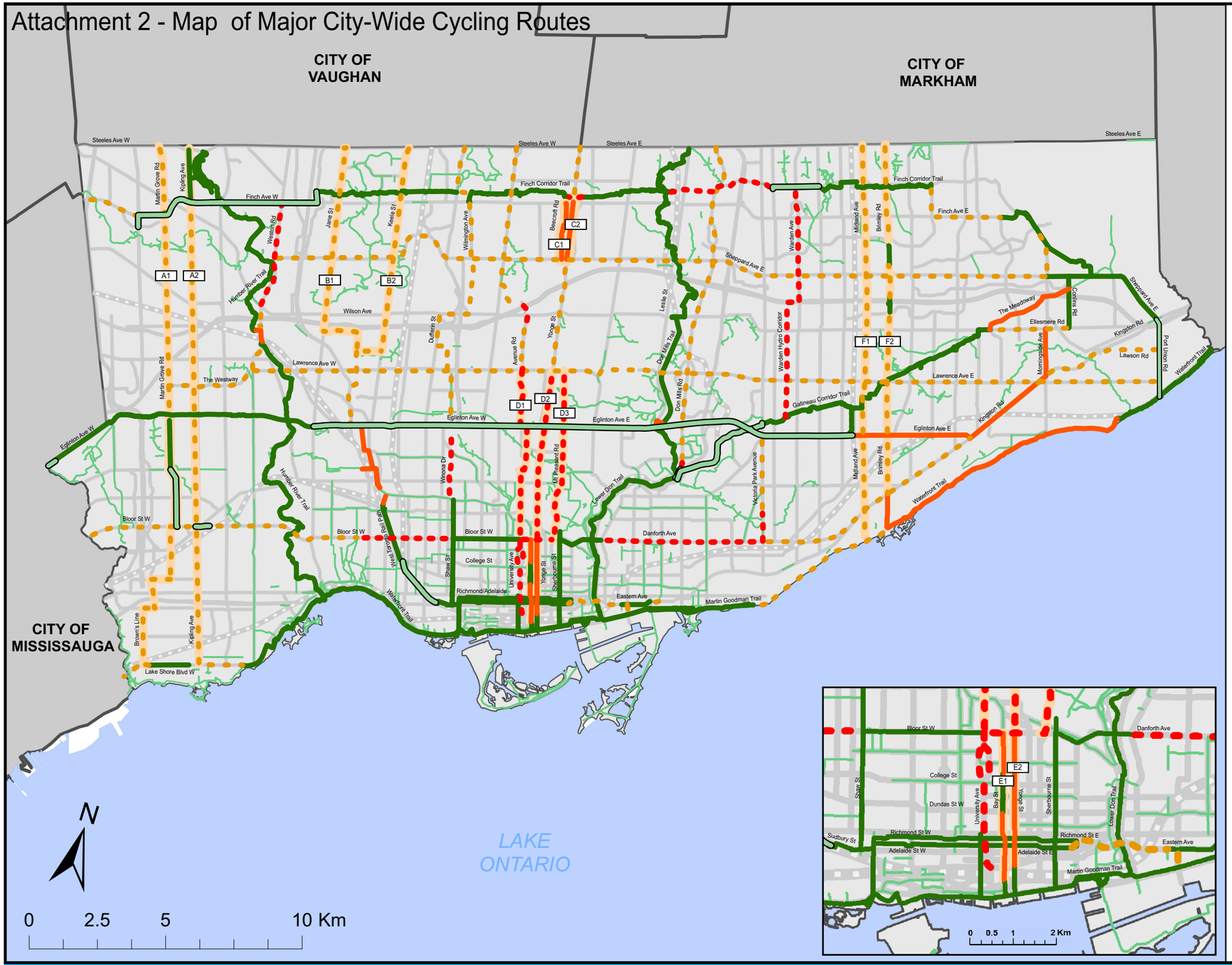
The quieter east-west residential streets adjacent to Yonge Street can be designed to create comfortable cycling routes. The design may include signs, pavement markings, and traffic calming elements. The Project Team has reviewed the east-west streets, and has identified the following quiet street routes within the Study Focus Area:

- Churchill Avenue / Church Avenue
- North York Boulevard / Elmwood Avenue
- Harlandale Avenue
- Avondale Avenue / Florence Avenue

In the northern portion of the study area, a connection is recommended to the existing east/west trail north of Finch Avenue, as illustrated in **Exhibit 6-6**. This is to be defined through a separate study. The connection to the south, across Highway 401, requires further collaboration with the Ontario Ministry of Transportation.

Exhibit 6-7 illustrates the proposed cycling network by analysis scores. The scores demonstrate the desirability of these routes, and do not reflect feasibility or constructability – a separate step in the programming process for new bikeways.

Attachment 2 - Map of Major City-Wide Cycling Routes



Status of Routes

- Existing Routes*
- In Design/Construction
- Environmental Assessment/ Study Underway
- Study Planned (2019-2021)
- Study Required
- Studies Planned in Conjunction
- Existing Local Cycling Network
- Rail Line

* Existing Routes to be considered in Renew Program for future upgrades

Data Source: City of Toronto
Projection: NAD 1927 MTM 3
Cartography: City of Toronto

Date: June 2019

TORONTO

Exhibit 6-7: Map of Proposed Cycling Network by Analysis Scores within the Study Focus Area

6.1.3 Intersection Improvements

At signalized intersections, careful consideration is required for the safe movement of all road users, particularly between turning motorists and pedestrians and cyclists. Where sufficient right-of-way is available, the preferred design is to implement “protected intersection” corners (see **Exhibit 6-8**) that include a forward queueing area for cyclists and pedestrians and setback crossings from the adjacent roadway to improve sightlines between turning motorists and vulnerable road users.

Where sufficient space is not available, cycle tracks should continue in the boulevard until the intersection and cross the street adjacent to motor vehicle lanes (see **Exhibit 6-9**). In each case, safety-supportive signal phasing should be further reviewed, including separate phases for cyclists and right turning vehicles, or leading pedestrian/bicycle intervals. The City of Toronto’s draft *On-Street Bikeway Design Guide* provides additional context and guidance on the design of cycle tracks at intersections.

As the study moves into the next design phase, the design details will be considered more closely, including refinements to the width of each element of the street, intersection geometry, operations and timing of signals and signal progression along the corridor, etc.

Exhibit 6-8: Protected Intersection (OTM Book 18)

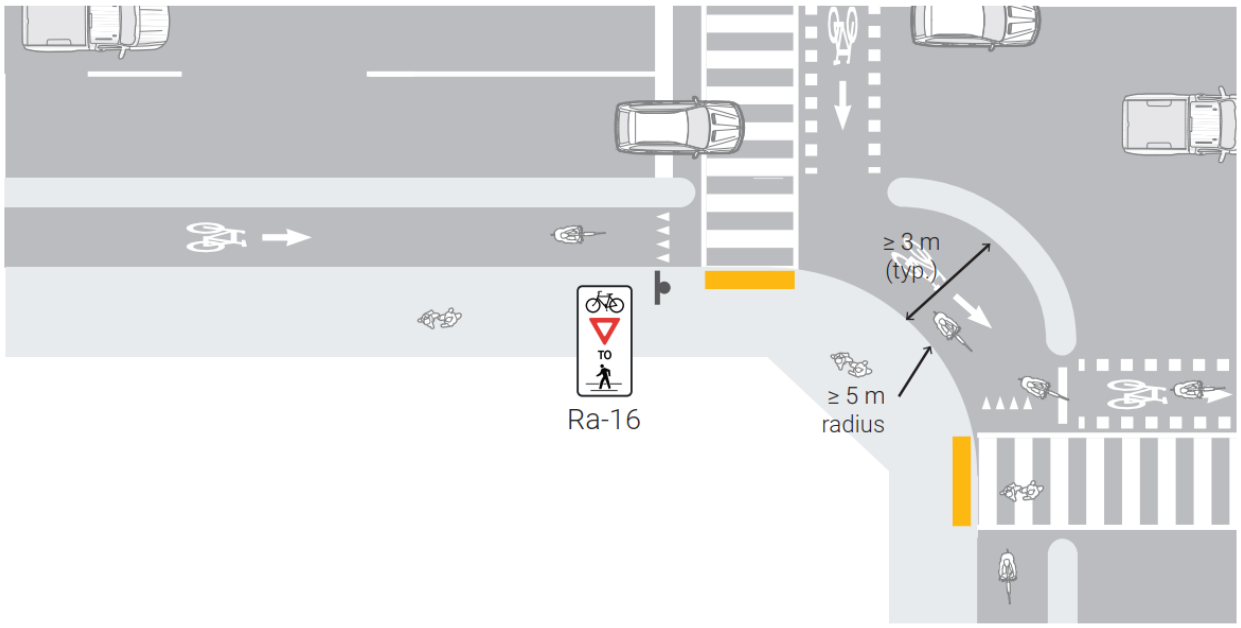
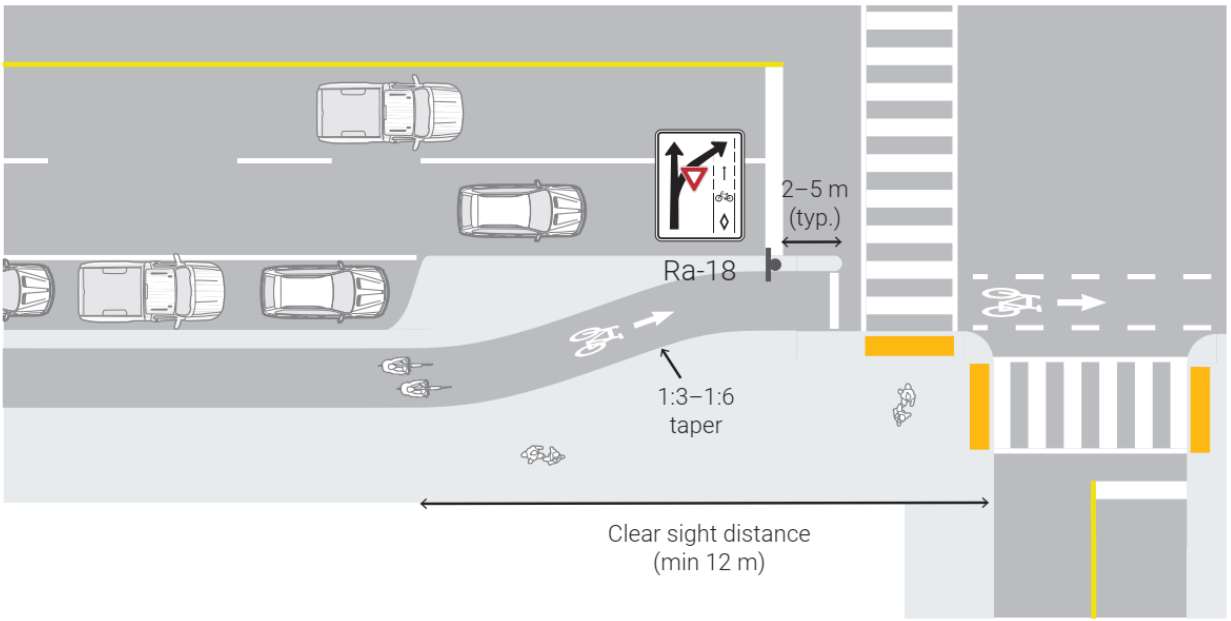


Exhibit 6-9: Adjacent Cycle Track Crossing (OTM Book 18)



The subsequent design phase will also consider the provision of intersection enhancements to assist cyclists making left turns from, and potentially to, Yonge Street. Where protected intersection corners (**Exhibit 6-8**) are used, left-turning cyclists may comfortably complete left turns in two-stages by queueing in the protected corner areas. In other cases, two-stage queue boxes (**Exhibit 6-9**) may be placed on side streets for cyclists completing left turns, providing a designated space for cyclists to wait in front of

the stop bar of the cross-street and out of the swept path of turning vehicles. When the traffic signals change to give the green indication to the cross street, cyclists then move through the intersection to complete their maneuver.

At minor intersecting streets, on-street two-stage turn boxes may be considered, similar to the design approach taken by the City on Sherbourne Street. On-street turn boxes should be paired with right-turn-on-red restrictions for the adjacent motor vehicle turns to prevent conflicts between motorists and queued cyclists.

The designs shown in **Exhibits 6-8** and **6-9** above are both presented in OTM Book 18 and are options for use at the intersections in the Study Focus Area.

The use of clear zone pavement markings (hatched pavement markings, together with "Do Not Block Intersection" signage) in intersections will also minimize the risk of operations being affected by queues reaching back from the downstream intersection.

6.1.4 Left Turn Restrictions

Today, along Yonge Street where the landscaped median exists, left turns are restricted from the east-west streets. Left turns are currently restricted at:

- Byng Avenue
- Kingsdale Avenue
- Hillcrest Avenue
- Hollywood Avenue
- Upper Madison Avenue (south)
- Spring Garden Avenue

With the extension of the landscaped median along Yonge Street, and reviewing the results of the transportation modelling, left turns to and from Yonge Street are proposed to be restricted from the following seven (7) locations:

- Olive Avenue/Tolman Street
- Norton Avenue
- Parkview Avenue
- Upper Madison Avenue (north)

- Harlandale Avenue
- Bogert Avenue
- Glendora Avenue

By reducing the number of locations at which left turns are permitted, traffic flow is expected to be more efficient in the remaining through lanes. Safety is also improved for pedestrians and cyclists at these side street crossings by eliminating the hazard of motorists permissively turning across traffic.

6.1.5 Parking

There are currently 255 parking spaces on Yonge Street; these are available only during off-peak hours (as there is no parking permitted during peak morning and afternoon travel periods on weekdays). These will be removed with the implementation of Transform Yonge.

There is the opportunity to implement 39 full-time on-street parking spaces in laybys on Yonge Street from Sheppard Avenue to Finch Avenue. Also, as shown in **Exhibit 6-10**, side streets in the study area could potentially accommodate an additional full-time 95 spaces within a 6-minute walk of Yonge Street. (The proposed spaces are on side streets only in the figure.) The addition of these spaces plus the 39 spaces on Yonge Street mentioned above (i.e. total of 134 spaces) would equate to a net decrease of 121 spaces. The exhibit also shows the correlation between the level of usage of the parking spaces by area, with the changes proposed.

As described in **Section 3.7**, there are over 14,000 publicly available parking spaces available within the Study Focus Area, operated by the Toronto Parking Authority, the TTC and private operators. The projected 121-space deficit is small compared to the overall number of spaces (less than one percent). The off-street parking garages and surface lots are not fully utilized, and it is estimated that at peak times on weekdays there are typically at least 1,000 spaces unused (referring to typical, pre-COVID pandemic conditions).

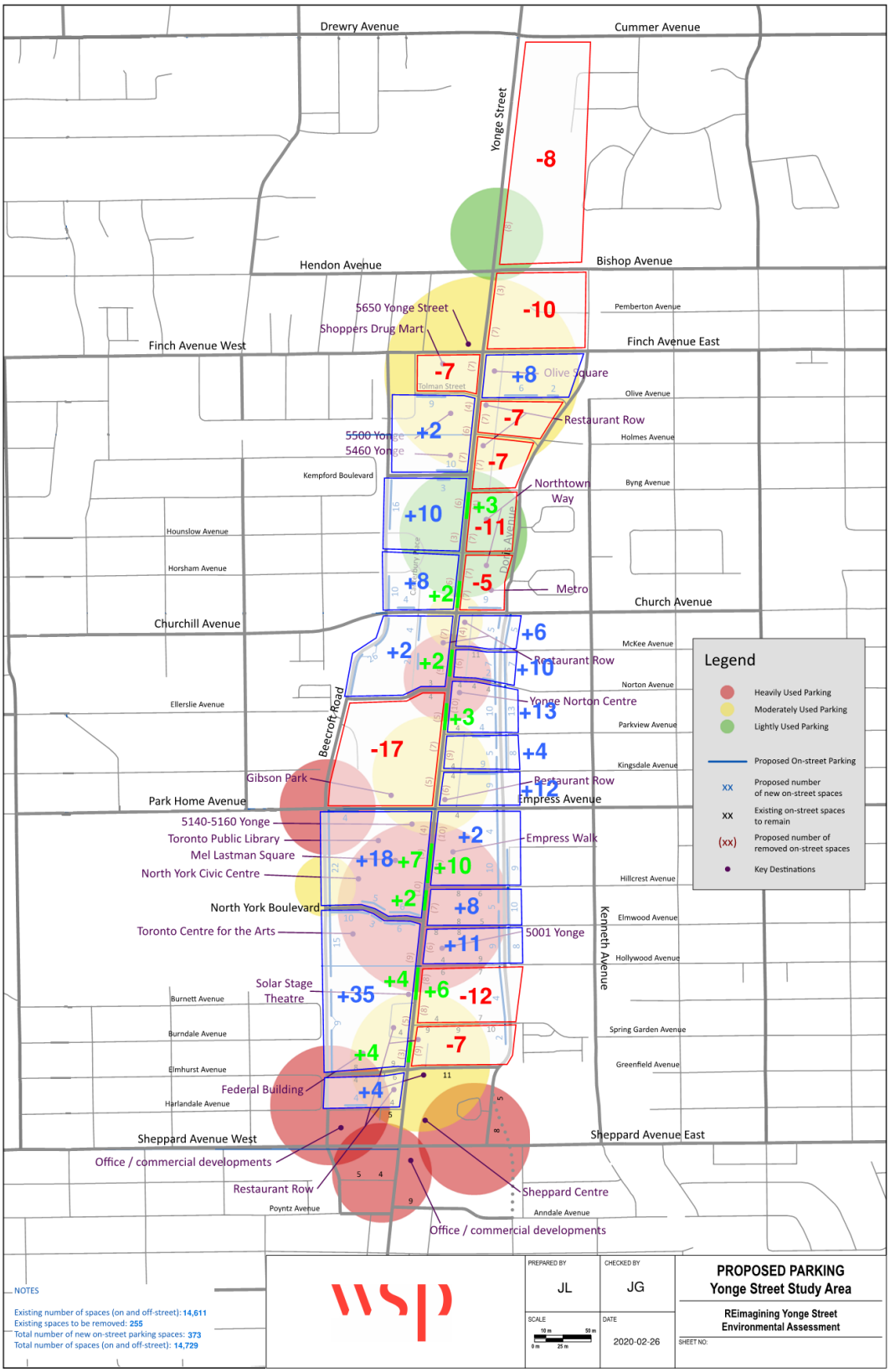
There is also the potential to add part-time parking spaces on Beecroft Road and Doris Avenue. However these would be available, as are the current spaces on Yonge Street, only outside peak traffic periods. A further 228 spaces could be provided on these streets, within a block of Yonge Street. This would result in a net gain of 107 spaces over the current supply of street parking along Yonge Street, Beecroft Road and Doris Avenue together.

If traffic conditions are found to warrant a reduction of the allowable parking times, from the current TPA parking restrictions of 7:00 a.m. – 9:00 a.m. and 4:00 p.m. – 6:00 p.m. for weekdays, to 7:00 a.m. – 10:00 a.m. and 3:00 p.m. – 7:00 p.m., this would result in a reduction of 15 hours per week during which revenue can be generated. If this additional restriction is required, the change in revenue is an approximate decrease of $60,000, resulting in an overall increase of approximately $140,000, which is still enough to offset the reduction in revenue from removing the spaces on Yonge Street.

As previously discussed, a significant proportion of the trips in the Study Focus Area occur over a short to moderate distance, however **Section 6.1.2** indicates that the existing conditions discourage travel by bicycle. This disincentive to cycling will be addressed by the proposed provision of raised cycle tracks on Yonge Street, which will particularly encourage cycling for moderate-length trips that are considered too far for many to walk. Based on the analysis of existing trip patterns, many of those trips are currently undertaken by car. Hence the anticipated modal shift to cycling is expected to reduce demand for motor vehicle parking and increase demand for bicycle parking.

Increasing use of automated vehicles and ride-share services could reduce parking demand in the future. While there are major uncertainties with respect to the timeline for prevalence of automated vehicles in the traffic stream, it is logical to expect that these vehicles together with ride-share services could decrease parking demands within the lifespan of a reconstructed Yonge Street (approximately 50 years). Private vehicle ownership is already declining in the City of Toronto, and these innovations will accelerate that trend.

Exhibit 6-10: Parking Mitigation Strategy



Providing dedicated space for residential and commercial on-street loading is another issue that has been considered in relation to curbside uses. The North York Centre Secondary Plan indicates that loading for new developments should be provided on-site. Thus, as development continues in the corridor, the need for on-street loading facilities will decrease. No additional civil works are expected to be required to accommodate loading needs. The City should monitor loading activities in the area once reconstruction is complete, to determine if an on-street loading strategy is needed. This could require conversion of select on-street parking spaces to loading spaces.

6.2 Public Realm

6.2.1 Integration of Public Spaces

The Project Team identified three public spaces along Yonge Street where there is the opportunity to enhance the existing public realm by integrating the public space into the street design to create unique features along Yonge Street, providing opportunities for expanded civic functions such as memorial ceremonies and festivals. The three areas are Olive Square Park, Mel Lastman Square, and the open space at Joseph Shepard Federal Building.

As part of the design review process with the Project Team, it was determined that only enhancements to the Mel Lastman Square would proceed as part of this study.

Mel Lastman Square

Mel Lastman Square is the heart of North York Centre. Located at 5100 Yonge Street at the North York Civic Centre, the Square hosts many community events. The Square is a park featuring 1,850 square metres of open space, a garden court, an outdoor amphitheatre, fountains, and a reflecting pool. Special events that showcase music, art, dancing, theatre, food, and sports are held at the square year-round. Designed in the late 1980's, the plaza serves as the setting for the North York Civic Centre, North York Central Library, and Toronto District School Board, and it carries a monumental scale and proportion, providing a perfect setting for various public events, ceremonies and gatherings. This public function often requires the street to be closed off in its vicinity which suggests a natural need for integration with the streetscape and the public realm across the right-of-way.

The extension and integration of the plaza space into the street space (see **Exhibit 6-11**) should consider an accessible, seamless resurfacing with flexible street furnishing elements (bollards, seating, bike parking, lighting, etc.); continuous, textured paving blended across the street and transitioning into the plaza; all-season landscaping with species selected to complement the columnar oaks lining the plaza or the fragrant,

shade-casting linden trees; decorative, feature lighting elements; and integrated public art. The plaza space should provide opportunities (i.e. locations and electrical outlets) for temporary exhibits such as removable digital panels or projections on vertical and horizontal surfaces.

To increase the significance of the Square and to announce its presence for those approaching it (motorists, pedestrians and cyclists), the streetscaping transition to and from the plaza should be carried out gradually both horizontally (hardscaping and paving details) and vertically (tree planting, wayfinding banners and signage) towards the nearest intersection along Yonge Street (Park Home/Empress Avenue). This will also facilitate wayfinding and rerouting for closures during special events.

Exhibit 6-11: Mel Lastman Square

Public Mews

At 5180 Yonge Street across from Parkview Avenue, between developments being completed by Sorbara Group and G Group Development, a public mews has been constructed (see **Exhibit 6-12**). This public mews is intended to be a gathering space with canopies, wind trellises, movable seating and there is the potential for food vendors at this location. The public mews has the potential to provide another opportunity for integration of public spaces along Yonge Street in future.

Exhibit 6-12: Renderings of the Public Mews at 5180 Yonge Street

6.2.2 Pedestrian Clearway Zones

Spanning between the inner edge of the cycle track buffer to the property line or building face, the pedestrian clearway zones will include an Edge Zone (4), a Furnishing and Planting Zone (3), a Pedestrian Clearway Zone (2), and, a Frontage and Marketing Zone (1) near the Property Line (see **Exhibit 6-13a**).

Each of these zones will be designed to provide clear, unobstructed surfaces that meet current AODA standards, be designed for comfort and year-long use, incorporate passive stormwater measures where possible, with materials and design that are durable and easy to maintain, and with an overall timeless esthetic and uncluttered organization.

Further to this, Yonge Street is classified as a Special Street in the Toronto Streetscape Manual with assigned typical design standards as shown in **Exhibit 6-13b**. While certain elements such as the decorative granite paving bands could be consistently implemented, the precast concrete planter lengths and tree spacing should be aligned with newer tree planting standards in order to ensure adequate soil volumes and growing conditions for the trees.

To ensure continuity throughout the corridor, the Edge Zone should have a consistent materiality and treatment and be placed between the cycle track and the furnishing zone if space allows or between the cycle track and the pedestrian clearway in constrained segments. In order to meet AODA standards, the edge will be paved with contrasting, tactile pavers when adjacent to the pedestrian clearway. As the Edge Zone will also serve as a cycle track buffer, a minimum 600 millimetre width is recommended from the edge of the asphalt.

Exhibit 6-13a: Toronto Complete Streets Guidelines – Pedestrian Clearway Zones

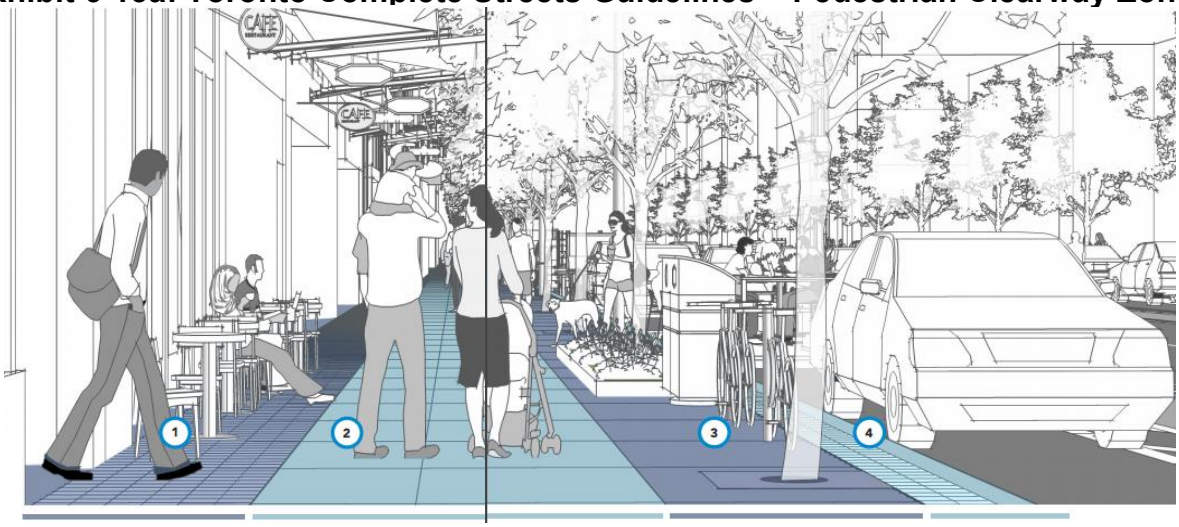
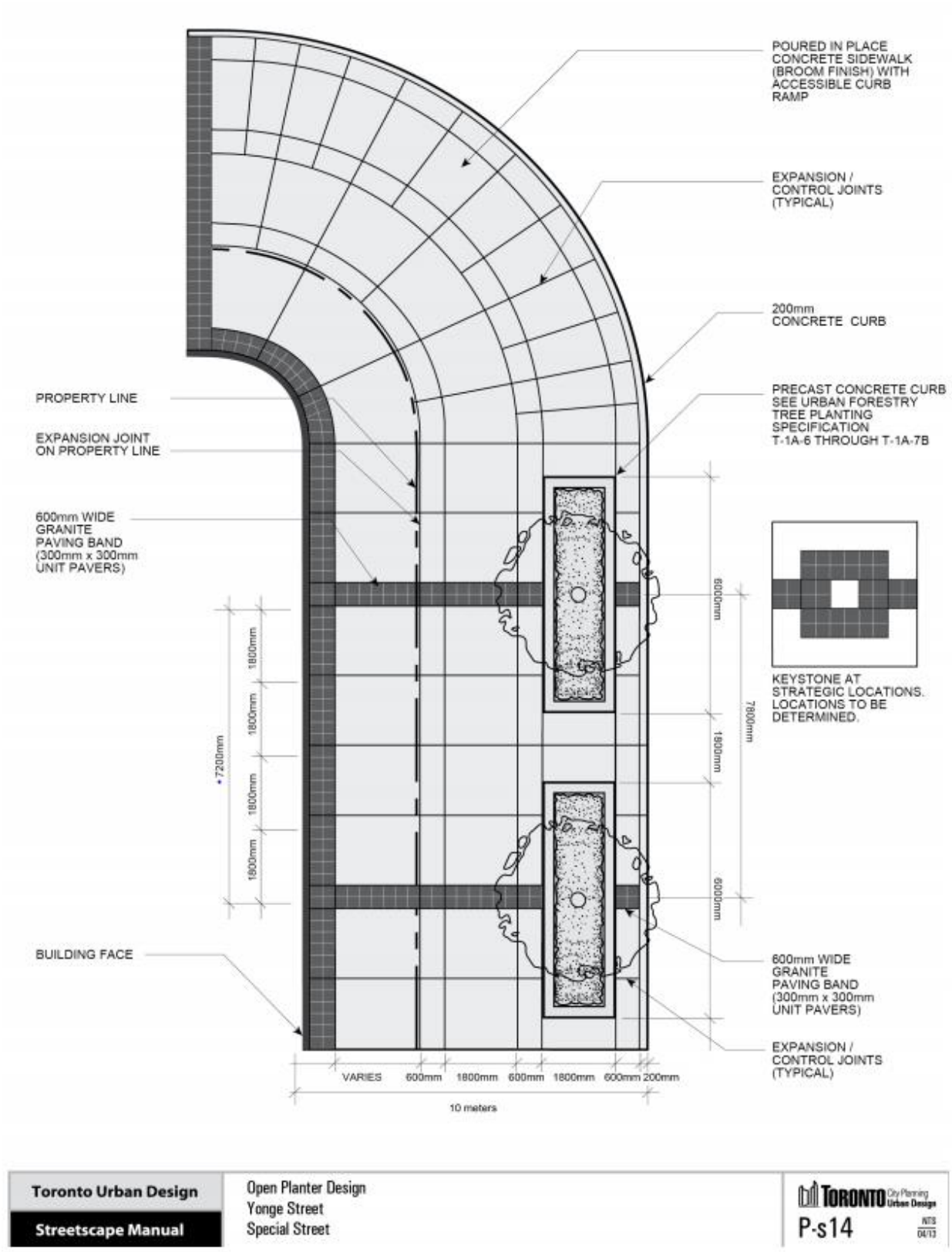


Exhibit 6-13b: Toronto Streetscape Manual – detail P-s14



The planting or furnishing zone should be a minimum of 2000 millimetres in width to accommodate concrete open planters with or without seating walls as well as adequate soil volume for tree planting for areas where below ground soil trenches are not feasible. The preference is to apply permeable paving along this zone to increase overall permeability and decrease runoff.

Within the furnishing zone, City of Toronto coordinated furniture will be selected such as transit shelters, litter bins, benches and bicycle rings.

Streetlighting poles and pedestrian lights will also be selected according to City Standards and in coordination with Toronto Hydro. In an effort to declutter the streetscape, consideration could be given to burying hydro wires at the detailed design phase.

The pedestrian clearway should be concrete and maintain a minimum unobstructed path of 2100 millimetres in width.

Tree planting should follow City of Toronto's Streetscape Standards, have a good selection of salt-tolerant native tree species as approved by the City, a minimum spacing of 10 metres whether in tree grates or in open planters.

6.2.3 Public Parkland

There is no impact to parkland within the Yonge Street right-of way.

6.2.4 Public Art

Development of a Public Art Strategy will establish a vision, guiding principles and framework recommendations for its public art program. To ensure public art is long lasting, functional, safe, economical, sustainable and beautiful, the public art strategy provides implementation, maintenance and conservation strategies, including funding mechanisms available, to support the Public Art Plan vision. It reflects the regional importance of Yonge Street in North York.

A Public Art Strategy will reinforce the Official Plan's definition of public art as a key component in its city-building objectives. The Public Art Strategy for Yonge Street will be consistent with the principles outlined in the City's Public Art Strategy. This strategy will serve as an important and proactive guide in prioritizing sites, both publicly and privately owned, that offer the most potential and impact for public art opportunities. Opportunity exists for the inclusion of public art in strategic locations within the corridor particularly at Olive Square Park, Mel Lastman Square and in front of the Joseph Shepard Building. The Public Art Strategy will explore additional opportunities for location of public art, including integrating into major infrastructure, parks and open

spaces, plazas, privately-owned public space (POPS), right-of-way and development sites. The art can be stand-alone and/or fully integrated into the features of the public realm, such as specific street elements like light poles, planters, wayfinding signs, and street furnishings. The opportunities and process for determining the Public Art Plan will be evaluated during the subsequent design phase.

6.2.5 Materials and Techniques

Materials and techniques will be reviewed and selected based on durability, ease of maintenance and longevity that meets the needs and abilities of the City's long-term asset management strategies as part of the subsequent design phase. Further consideration will be given in the detailed design phase to the application of granite paving bands in combination with the raised concrete planters as recommended in the Toronto Streetscape Manual for the Special Streets.

6.2.6 Sustainability

The proposed corridor design embodies sustainability through enhanced pedestrian facilities, creation of dedicated cycling facilities, and improved connectivity to promote non-motorized modes of transportation. By providing facilities for active transportation choices, the use and reliance on motorized vehicles are expected to decrease, thereby enhancing air quality and reducing greenhouse gas emissions.

Other sustainability elements will include the ability to store the first five millimetres[1] of storm events in expanded planting areas as well as the evapotranspiration function of the increased number of trees. High emissivity admixtures will be explored for use in cast-in-place concrete pedestrian clearways to reduce lighting needs from Light Emitting Diode (LED) lighting where possible. Additionally, the furnishing zone provides an opportunity for installing permeable paving between the open planters in both the boulevard and the median, while the open planters could be designed as bioswales in areas where runoff could be harvested and diverted into the planters. The increase in tree canopy coverage, the increase in permeable and landscaped surfaces and the selection of paving materials with high Solar Reflectance Index (SRI) values will further reduce the urban heat island effect. The Toronto Green Street Technical Guidelines will guide future phases of design.

[1] Per *Wet Weather Flow Management Guidelines*, City of Toronto (2006)

6.3 Utility Improvements and Relocations

The recommended plan will implement wider pedestrian clearways, cycle tracks, and realignment of the curbs, which will result in minor grade changes throughout the corridor. There are no below-grade works of significance as part of the recommended plan.

The Project Team has circulated the recommended plan to utility providers within the study area and received feedback with respect to the impacts or opportunities on any existing or proposed infrastructure for each of the providers within the study area.

Based on the Project Team's correspondence with utility providers, no significant impacts were identified at the time of the plan circulation. As the project progresses through to the next design phase and construction, the City and Design Team will confirm potential utility conflicts, consider design options such as burying Hydro wires, and continue to engage utility service providers, including Telecom, to review the detailed plan to confirm locations, potential impacts, and discuss mitigation measures and opportunities to coordinate during construction.

6.3.1 Municipal Services

The recommended plan has been reviewed by Toronto Water with respect to the storm sewers, sanitary sewers and watermains within the Study Focus Area. The following existing municipal infrastructure has been identified within the study area: local sanitary sewers, local storm sewers, local watermains, sanitary manholes, storm manholes, water chambers, water valve and boxes, and catchbasins.

Minor impacts have been identified through the study process including: the raising / lowering of manhole lids, raising / lowering of existing catchbasins, and the addition of new catchbasins.

As the study progresses to detailed design, the City will confirm potential utility conflicts and infrastructure adjustments, as well as any temporary infrastructure required during construction and discuss mitigation measures during construction as required.

6.4 Construction

6.4.1 Construction Staging

Preliminary construction staging concepts have been developed for Yonge Street, taking into consideration the important role of the street in the transportation network and community. Construction is anticipated to be completed in groups of a few blocks, using a staging process similar to that shown in **Exhibit 6-14**. Frequently one side of the

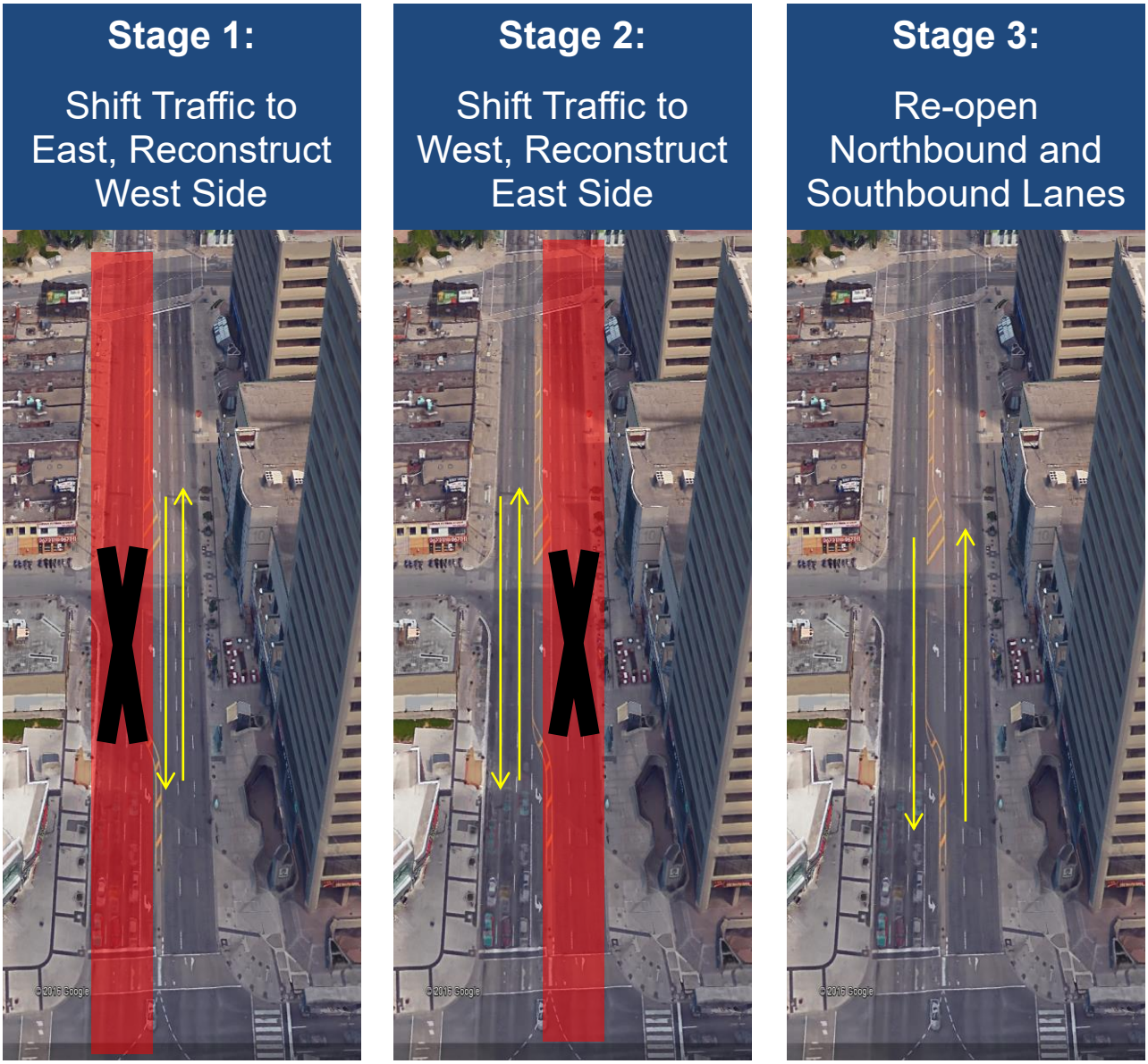
street is completed, while two-way traffic is diverted to the other side. When the first side is complete, traffic is funneled to the completed side while the second side of the street is reconstructed. However, the preferred strategy will be detailed in future design stages.

The following elements comprise important principles of the construction staging strategy that shall be considered in the next design phase:

- Maintain two lanes of traffic per direction as much as possible;
- Access to businesses and residences maintained at all times for pedestrians, and as much as possible for vehicles. Short-term vehicular restrictions may be needed;
- Most or all work would be completed during the day/evening;
- Emergency access maintained during construction;
- Use of tree protection zones;
- Safe pedestrian access in the construction area maintained at all times, maintaining the minimum required pedestrian clearway width as much as possible;
- Alternative routes for cyclists identified; and
- Outreach to the community before each stage of work begins.

The City of Toronto will work proactively to manage effects on local businesses and residents, and will establish a business liaison during the detailed design phase – a role which will continue throughout the construction stage. More details about the construction staging strategy will be developed and presented to the public during the detailed design stage.

Exhibit 6-14: Concept for Construction Staging



6.4.2 Construction Timing

Subject to approval of this Municipal Class Environmental Assessment Study, the subsequent detailed design assignment, approvals and the allocation of funding, and the implementation of Doris Avenue connection to Tradewind Avenue and the extension of Beecroft Road, construction for Yonge Street is anticipated to begin in 2026 or later.

6.5 Cost Estimate

The estimated cost of the project, including streetscape and public realm improvements, is $60.44 million, in 2020 dollars. This includes utility relocations, major reconstruction of Yonge Street, intersection improvements, landscaping, public art, engineering and contingency.

7.0 POTENTIAL ENVIRONMENTAL EFFECTS, MITIGATION MEASURES, AND COMMITMENTS TO FUTURE WORK

This chapter focuses on the direct and indirect environmental effects associated with the project, based on the recommended plan. It also describes the proposed mitigation measures that will be implemented to minimize the effects of the undertaking and commitments to future work.

The key to ensuring effective environmental quality control and risk management during the project is the development and proactive implementation of an approach that:

- Identifies the environmental sensitivities;
- Presents the environmental protection measures in a way that can be translated into contractual requirements, and for which compliance can be verified; and
- Includes a monitoring program which verifies that the environmental protection measures are being implemented and are effective.

7.1 Natural Environment

7.1.1 Vegetation

It is anticipated that the streetscape, public realm and infrastructure improvements proposed along Yonge Street will result in major reconstruction that will impact adjacent vegetation and street trees. While the existing pavement area is not increasing, the existing roadway will be reconfigured to accommodate the widened pedestrian clearway and cycling facilities. There are 217 existing trees in the landscaped median and street trees along the pedestrian clearway identified for removal to facilitate the reconstruction. Replanting and/or revegetation opportunities will be investigated further in detailed design.

Due to the potential impacts to roots that may be exposed during construction, it is recommended that the roots be pruned cleanly, abiding by the guidelines in the City's Pruning Practices' and 'Branch Pruning Practices'.

Given the urbanized nature of the natural environment, the anticipated impacts are generally associated with construction activities. The following mitigation measures are recommended to minimize or avoid any potential negative environmental effects:

- Environmental inspections shall be conducted during construction to ensure that protection measures are implemented, maintained and repaired and that remedial measures are initiated where warranted;
- A tree protection plan shall be developed during the detailed design phase;
- Some impacts can be mitigated by minimizing the encroachment of construction activities into manicured lawns along Yonge Street as much as possible;
- Tree protection fencing and minimum Tree Protection Zones will be applied in accordance with the City's Tree Protection Policy and Specifications for Construction near Trees;
- All 32 Ash trees identified within the Study Focus Area shall be removed in accordance with Canadian Food Inspection Agency regulations, and are exempt from requiring a permit and compensation;
- All tree removals shall be compensated with the replacement policies within the City's Tree Protection By-laws;
- Should any work be required within a minimum Tree Protection Zone, the Contract Administrator should be notified and this work shall be done so in accordance with the guidelines in this report under 'Work within a Tree Protection Zone' and 'Tree Preservation / Mitigation Measures'; and
- All Erosion and Sediment Control (ESC) measures are to be inspected and maintained by the Contractor to ensure they are functioning as intended through the construction period.

7.1.2 Wildlife

Given the Study Focus Area is highly urbanized with a lack of wildlife habitat, and the proposed public realm and streetscape improvements will not result in an increased pavement area along Yonge Street, significant impacts to wildlife or wildlife habitat are not anticipated. Minor impacts could affect birds or nests, however with the implementation of the following mitigation measures, potential impacts will be minimized or avoided:

- The Contractor must abide by the *Migratory Birds Convention Act* (MBCA) (1994);
- Vegetation clearing and removal of street trees should occur before April 1st or after August 31st to lessen the chance of disturbing nesting migratory birds;

- If the construction activities are such that continuing construction in an area would result in a contravention of the MBCA (e.g. disturbing nesting migratory birds), all activities would stop and the Contract Administrator will develop and implement a mitigation / monitoring plan for the nest site;
- Any wildlife incidentally encountered during construction will not be knowingly harmed and will be allowed to move away from the construction area on its own if at all possible. In the event that an animal encountered during construction does not move from the construction zone, or is injured, the Contract Administrator will be notified and shall instruct an Environmental Inspector to move the animal to a safe area; and
- If vegetation clearing or grubbing occurs during the breeding bird period (generally April 1st to August 31st), this activity shall be preceded by a bird nest survey conducted by a qualified biologist to ensure no active nests (with eggs or young) are disturbed.

7.1.3 Species at Risk

As outlined in **Section 3.1.2**, there are limited Species-at-Risk (SAR) that may occur within the study area. Butternut, as SAR tree specimen, may be present as a street tree, however planted specimens are not protected under the ESA. Chimney Swift may nest in a chimney in the vicinity and forage over the study area. The Canadian Peregrine Foundation website indicates that Peregrine Falcons have been using various buildings along Yonge Street. Given the proposed works do not impact buildings, impacts on Peregrine Falcons are not anticipated.

It is recommended that the Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) and the Ministry of Environment, Conservation and Parks (MECP) be contacted during the next design phase to confirm the potential SAR present within the study area.

7.1.4 Fish and Fish Habitat

As no surface water features are present within the study area, no effects to fish and fish habitat are anticipated and no mitigation measures are required.

7.1.5 Landscape

The existing landscaped median, vegetation and street trees within the City's right-of-way may need to be removed to facilitate construction. A tree protection plan and landscape plan will be developed in the next design phase to protect trees and to replant street trees and landscapes to enhance the public realm.

During detailed design, further consultation with the City's Urban Forestry department will determine the specific tree and shrubs that are planted in the landscaped median and in the boulevard planters along Yonge Street.

7.1.6 Drainage

The existing streetscape generally provides good drainage although some isolated areas have been identified with limited ponding under existing conditions.

A preliminary grading plan has been prepared as part of this study. The design provides positive drainage throughout the Yonge Street right-of-way with the storm runoff directed to catchbasins during storm events. In the event of extreme weather events, all runoff may not be captured in the catchbasins and will be directed along the Yonge Street right-of-way with any ponding contained within the public right-of-way. During an extreme weather event, a minimum of one lane of traffic in each direction will be maintained.

During the next design phase, the grading and stormwater calculations will be further refined to ensure the recommended plan complies with the drainage requirements of the City of Toronto.

7.1.7 Contamination and Waste Management

As summarized in **Section 3.1.5**, two Phase One Environmental Site Assessments (ESAs) were completed as part of this study to determine the presence and significance of any actual or potential contamination within the study area.

The potential contaminating activities (PCAs) were reviewed within the study area and properties with low, medium, and high potential for environmental concern (APECs) were identified throughout the entire extent of Yonge Street, with potential contaminants of concern being identified as metals and inorganics, volatile organic compounds, petroleum hydrocarbons, polycyclic aromatic hydrocarbons and polychlorinated biphenyls.

It is recommended that further Phase Two ESAs be completed during the next design stage in order to determine the soil and groundwater quality at the locations of the APECs and any mitigation measures (e.g. soil or groundwater management plan) required during construction.

Several types of excess materials (e.g. asphalt, signs, street trees, planters, concrete, etc.) are anticipated to be generated during construction work which will require appropriate management and/or disposal. These materials will be sorted and either reused if feasible, recycled, or disposed of at an approved landfill facility in accordance

with standard construction mitigation measures. The types and quantities of these materials will be determined during the subsequent detailed design.

7.1.8 Air Quality

An Air Quality Screening Assessment was completed to assess existing and potential air quality impacts of the preliminary proposed Design Options 4A and 4B along Yonge Street.

The air quality assessment determined that at a regional level the air quality has been improving as the levels of concentrations of contaminants of concern (COCs) are generally in declining trend. Similarly, the air quality trend within the study area and the vicinity has exhibited similar characteristics. On this basis, it is expected that due to the proposed changes of the Study Area, utilization of existing rapid transit systems and fuel-efficient passenger cars and buses, the general air quality in the Study Area is to remain or get better with time, resulting into reduction of overall emissions.

Air Quality during Construction

Construction activities typically generate a considerable amount of air pollution. Construction activities may involve heavy equipment that generates air pollutants and dust; however, these impacts are generally considered temporary. The emissions are typically highly variable, and prediction is difficult, depending on the specific activities that are taking place and the effectiveness of the mitigation measures.

To minimize impacts during construction it is recommended that the following mitigation measures be applied:

- Implementation of Construction Code of Practice, operating procedures such as application of dust suppressants, efficient staging of construction activities and minimization of haul distances, covering up stockpiles, etc.;
- The construction tendering process should include requirements for implementation of an emissions management plan within the umbrella of the Environmental Management Plan;
- Standard construction practices for the control of dust will be implemented during construction to minimize the generation and spread of dust;
- The use of dust suppressants to ensure dust is effectively managed and kept to a minimum;

- The use of reformulated fuels, emulsified fuels, exhaust catalyst and filtration technologies, cleaner engine repowers, and new alternative-fueled trucks to reduce emissions from construction equipment;
- Regular cleaning of construction sites and access roads to remove construction-caused debris and dust;
- Ensure loads hauling fine-grained materials are covered;
- Compliance with posted speed limits and, as appropriate, further reductions in speeds when travelling sites on unpaved surfaces;
- Restrictions on the idling of construction equipment unnecessarily so that idling is kept to a minimum; and
- Environmental Compliance Approvals (ECAs) from the MECP and appropriate dust controls/suppression for any portable crushers, asphalt plants or concrete batching plants.

7.2 Socio-Economic Environment

7.2.1 Land Use

Yonge Street is situated within North York Centre, which is designated as an urban growth centre, is required by the Province's *A Place to Grow: Growth Plan for the Greater Golden Horseshoe* (2020) to achieve a minimum density target of 400 residents and jobs combined per hectare. This Class EA Study is in accordance with the Growth Plan and the City's Official Plan, therefore no mitigation measures have been identified for land use.

7.2.2 Property Requirements

Transportation, public realm and streetscape improvements along Yonge Street will occur within the City's existing right-of-way. Adjacent property is not required for the improvements. The need for temporary limited interests (TLIs) for construction staging will be reviewed in more detail during the detailed design phase.

7.2.3 Existing Public Art

There is existing public art along Yonge Street, including a work in the existing landscaped median in front of Mel Lastman Square that will be affected by the recommended plan. Preliminary mitigation measures have been developed for relocating this "Dance" installation that will be further explored during detailed design as discussed in **Section 6.2.4**. These mitigation measures include:

- New location for the “Dance" installation will be determined through the development of a Public Art Strategy;
- The City’s Public Art Conservator will seek the artist’s, Robert Sprachman, involvement in the relocation processes;
- The City’s Public Art Conservator should supervise the move and be included in the selection of the art mover/installer;
- The sculpture must be moved with its platform intact to the new location; and
- The "mini dancers" currently located on the various planters beside the main sculpture should be removed from the existing planters and reinstalled on the new planters in their same orientation.

Opportunities to include additional public art within the corridor shall be explored in the next design phase as part of the Public Art Strategy recommended in **Section 6.2.4**.

7.2.4 Noise

As part of the study, a noise assessment was completed to assess noise impacts caused to any outdoor living area (OLA) by construction of any new roadway, or by the widening of an existing roadway. OLAs are considered an outdoor area that is easily accessible from the building and intended for the quiet enjoyment of the outdoor environment (e.g. an outdoor patio, a backyard, a terrace, other area where passive recreation is expected to occur). In general, the following OLAs are considered noise sensitive areas (NSAs):

- Private Dwellings: Individual family units and townhouses;
- High-rise buildings (e.g. apartments) having a common OLA;
- Educational facilities and daycare centers with OLAs for students;
- Hospitals and nursing homes with OLAs for patients;
- Campgrounds for providing overnight accommodation;
- Hotels and motels with outdoor common OLAs (such as swimming pools) for visitors; and
- Places of Worship.

A noise assessment was undertaken as part of this study to assess the proposed modifications to Yonge Street and the potential for noise impacts due to road traffic noise on the neighboring sensitive areas. The noise assessment was completed in

accordance with the MTO's *Environmental Guide for Noise* (2006) (hereafter referred to the MTO Noise Guide).

The daytime sound levels for one representative OLA located between Church Avenue and Northtown Way was evaluated. It was determined that sound levels are approximately 62 dBA, taking into consideration 3 dBA for shielding attenuation between the road and the residences. The actual noise felt is anticipated to be 59 dBA or less. The noise impacts at other NSAs are anticipated to be the same as present day. It should be noted that the sound level changes of 0 to less than 3 dBA are considered acoustically insignificant, while the changes from 3 to less than 5 dBA are considered acoustically noticeable.

By reducing the vehicular lanes from six to four, the projected noise levels in 2031 are comparatively lower for "Build-Out" conditions than the "No-Build" conditions, thus improving noise conditions for the overall Study Focus Area.

7.2.5 Construction Noise

During construction of the improvements, the Contractor will be required to abide by the Contract Operational Constraints and the City's noise control by-laws. The Contractor will be required to keep idling of construction equipment to a minimum and to maintain equipment in good working order to reduce noise from construction activities.

The following summarizes the commitments for the subsequent detailed design phase and recommendations relating to the management of construction noise during construction:

- In conjunction with the City's Public Consultation Unit (PCU), the Contractor should notify adjacent property owners (i.e., residents, businesses, etc.) in advance of construction. This should be a staged notification, with the initial notice provided two weeks in advance of construction, then a reminder one week in advance, and a final notification 48 hours before construction begins;
- The Contractor should obtain copies of the current noise control by-laws from the City of Toronto. Where adherence to the by-laws is not possible and mitigation is not feasible, an exemption from the City of Toronto should be obtained before the start of construction work. A noise by-law exemption for night work may be required for select work and will be further reviewed and obtained if necessary during the detailed design phase;
- The MECP's limits sound emissions from various equipment used during in construction. Sound emission standards for the various types of construction equipment used on the project must be checked to ensure that they meet the

specified limits contained in MECP's Publication NPC-115 – "Construction Equipment";

- Unnecessary noise emission by faulty or non-operating components of equipment should be minimized by regular maintenance of the equipment. Idling of construction equipment should be restricted to the least time necessary to complete any specific task;
- The construction equipment should be operated with effective muffling devices that are in good working condition;
- Regular maintenance of construction equipment must be undertaken for minimizing the noise level;
- In case of complaints, the Contractor must work with the City of Toronto to investigate the noise concerns and subject to the result, further alternative noise control measures may be tried. Verification should be carried out whether or not the "general noise control measures" agreed to are in effect; and
- Subject to the results of a field investigation, alternative noise control measures may be required, where these are reasonably available. In selecting the appropriate construction noise control and mitigation measures, the Municipality will give consideration to the technical, administrative, and economic feasibility of the various alternatives.

7.2.6 Business Community

A liaison with the business community will be appointed during the detailed design phase, to serve as a point of contact between the City and construction Contractor, and the community throughout the construction period, in order to facilitate access for parking, loading and pedestrians, and ensure that issues are dealt with promptly and effectively, to minimize impacts on the business community.

7.3 Cultural Environment

7.3.1 Archaeological Resources

As noted in **Section 3.3.1**, a Stage 1 Archaeological Assessment that included a background review and property inspection determined there are no areas of archaeological potential within the existing Yonge Street right-of-way between Avondale Avenue and Bishop Avenue. Given this, no further assessment is required for the public realm and streetscape improvements, as this area is considered disturbed and free from archaeological concern. The one exception is for lands immediately adjacent to Willowdale Cemetery, which may require further archaeological assessment and a

Cemetery Investigation Authorization should soil disturbance be contemplated. This determination shall be made in collaboration with the Ministry of Heritage, Sport, Tourism and Culture Industries and the Bereavement Authority of Ontario. The following summarizes the mitigation measures and commitments to future work identified as a result of the archaeological assessment:

- It is recommended that a licensed archaeologist be on site during all sub-surface excavations within 10 metres of the Willowdale Cemetery boundaries to monitor construction activities and ensure that no unmarked graves are impacted during development;
- Should deeply buried archaeological materials be encountered during construction, all work should be stopped and a professionally licensed archaeologist consulted to assess the cultural heritage value and significance of the archaeological deposits; and
- Should the proposed work extend beyond the current Study Area within the existing right-of-way, further Stage 1 Archaeological Assessment may be required to evaluate the archaeological potential of the lands affected and to provide recommendations.

7.3.2 Built Heritage and Cultural Heritage Landscapes

A cultural heritage overview was completed to identify and document existing listed (non-designated) or designated properties on the City of Toronto's Heritage Register, or designated structures, or identified cultural heritage landscapes within or adjacent to the study area. The research and evaluation of additional potential built heritage resources (e.g. North York Civic Centre) was not within the scope of the cultural heritage overview as the areas to be impacted by development along Yonge Street are contained within the City's existing property limits, including the roadway, median and pedestrian clearway, with no development expected beyond the existing property limits. As part of this study, potential direct and indirect impacts to cultural heritage resources were identified, and general mitigation measures were recommended for affected built heritage resources and cultural heritage landscapes.

Direct impacts refer to demolition or removals. There are no identified direct impacts (i.e. demolition to identified heritage resources) as a result of the recommended improvements to Yonge Street.

Indirect impacts include temporary impacts during construction, such as the introduction of physical, visual, audible or atmospheric elements that are not in keeping with their character and/or setting. The streetscape, public realm and transportation improvements do not have indirect impacts on heritage resources.

Recommendations have been developed based on the background historic research, locations of listed or registered heritage structures, property visit and discussions with the North York Community Preservation Panel and City Heritage staff. These recommendations include the following:

- The existing built heritage resources and cultural heritage landscapes within the study limits shall be confirmed and reviewed and appropriate agencies contacted in detailed design to confirm and identify any changes or additional heritage resources or landscapes since the completion of the Preliminary Design;
- New infrastructure required along routes should be designed with the largest setback from heritage buildings (center of right-of-way within roadway) wherever possible;
- Prior to construction, the Contractor must become familiar with the identified cultural heritage resources and landscapes on and adjacent to the area of the undertaking, as well as any corresponding setbacks implemented by the City of Toronto; and
- During construction and after the completion of construction activities, the City of Toronto Heritage Planning staff should inspect the property to confirm that there are no unanticipated adverse impacts on the cultural heritage resources.

7.4 Technical Considerations

7.4.1 Emergency Vehicle Response

The Project Team will continue to consult with City of Toronto emergency service representatives from Police, Fire and Emergency Medical Services during detailed design to determine appropriate mitigation measures for the construction phase, to facilitate effective emergency response throughout the corridor. These should include design aspects such as rolled curbs for the cycle tracks and median, and vehicular crossing opportunities in the median.

7.4.2 Parking

With the implementation of Design Option 4B from Sheppard Avenue to Finch Avenue, the existing on-street parking will be eliminated. An inventory of the existing parking options along Yonge Street was conducted and determined that only 5% of the total parking supply is located on Yonge Street and some of the intersecting streets.

As mentioned in **Section 3.7**, there are a variety of on and off-street parking options available to drivers. These options were reviewed to develop a parking mitigation

strategy, reflecting the fact that there is capacity available for drivers to park in off-street facilities.

The following mitigation measures are recommended to minimize the impact on drivers and businesses:

- 134 new full-time on-street parking spaces can be added to Yonge Street and the east-west side streets;
- A further 228 part-time parking spaces could potentially be provided on Beecroft Road and Doris Avenue within the block of Yonge Street, resulting in a net gain of 107 spaces over the current supply for the Study Focus Area;
- An integrated electronic parking management system should be considered, in which parking use in off-street facilities is tracked electronically by facility and the available parking highlighted to drivers via electronic messaging systems at key arrival points and apps; and
- Pedestrian cross-overs of Beecroft Road and Doris Avenue should be reviewed to determine if more are needed to facilitate access to the parking on these streets.

The proposed parking mitigation strategy and specific locations to implement parking on streets east and west of Yonge Street will be reviewed with Toronto Parking Authority (TPA) and further refined during detailed design. Additional consultation sessions will be held during detailed design to present the proposed locations on the east-west streets.

7.4.3 Illumination

The extent of the additional illumination along Yonge Street will be confirmed in the detailed design phase. Should new, additional illumination be required, the use of luminaire shields and photometrics and the locations of the light poles should all be reviewed to mitigate light pollution such as light trespass onto private properties and glare.

Opportunities for increased sustainability in lighting should be considered during detailed design – thinking about the future of “smart” lighting systems, including enhanced functionality for measurement of transportation flows and special lighting arrangements adjacent to Mel Lastman Square. Lighting design as part of the design for the public realm and public art should be considered during detailed design, as a means of increasing the sense of place in this civically important corridor (and particularly at Mel Lastman Square). Opportunities for pedestrian-scaled lighting should be explored.

7.4.4 Transportation Operations

The impacts of Transform Yonge on transportation operations have been defined through the detailed meso / microsimulation of the study area. Scenarios with and without the other planned road extensions in the area have been assessed, to ensure that the likely range of future conditions has been covered. The scenarios were:

- Do-Nothing (i.e. Yonge Street 6 lanes);
- Transform Yonge 1, reducing Yonge Street to 4 lanes from Sheppard Avenue to Finch Avenue;
- Transform Yonge 2, adding the extension of Beecroft Road to Drewry Avenue; and
- Transform Yonge 3, which included a cul-de-sac on Hendon Avenue west of Beecroft Road.

Traffic Operations

Key findings from the analysis are as follows:

- Generally speaking, the traffic impact, across the study area network, of implementing the Transform Yonge scenarios (including the extension of Beecroft Road to Drewry Avenue, with sub-options for connections to Beecroft Road) in 2031 is noticeably less than the impact associated with traffic growth between 2016 and 2031;
- An increase in traffic volume is observed on most north-south corridors between 2016 and 2031 for the Do-nothing scenario, due to traffic growth at the screenlines north of Sheppard Avenue and south of Finch Avenue. In the Transform Yonge scenarios, the simulated traffic volume on Yonge Street increases relative to the Do-nothing, and those on Doris Avenue and Beecroft Road increase. The change on other parallel streets (for example Bathurst Street and Bayview Avenue) are negligible, indicating that the configuration of Transform Yonge has very little impact outside the Study Focus Area; and
- At the network level, there are no significant differences between the three 2031 Transform Yonge scenarios.

The following findings from the Transform Yonge scenarios are relative to the 2031 Do-nothing scenario:

- Travel time changes on Yonge Street resulting from Transform Yonge are minimal - ranging from zero to 0.8 minutes;

- Travel time changes on other roads are also small. The largest increase is southbound on Doris Avenue, showing a range of increases from 1.2 to 1.9 minutes;
- Factors such as average speed and delay do not change relative to the Do-nothing scenario;
- Impacts on TTC bus services have been assessed. At TTC bus terminal access points, bus level of service remains the same, generally. At the Finch Bus Terminal, the westbound right turn exit from Pemberton Avenue shows an increase in delay, which is mitigated by the proposed inclusion of a northbound bus-only lane from this point to Bishop Avenue;
- Travel time and delay on Yonge Street do not increase notably relative to the Do-nothing scenario;
- Projections of road section level of service show that little change is expected on Yonge Street (and the change is primarily outside the Transform Yonge area, suggesting the change is due primarily to growth). Little change is also projected on Beecroft Road. Some segments of Doris Avenue are projected to be at capacity southbound, on an intermittent basis;
- Intersection levels of service are not projected to worsen overall. Only the intersection of Yonge Street/Elmhurst Avenue/Greenfield Avenue is expected to reach LOS 'E' due to the removal of northbound left-turn movement at Yonge Street/Sheppard Avenue;
- Regarding queue lengths, the only locations where large increases are projected are at the intersections of Yonge Street at Drewry Avenue, Elmhurst Avenue/Greenfield Avenue, and Florence Avenue/Avondale Avenue. Potential mitigating measures are identified in **Exhibit 7-1**. These should be considered during the next design phase;
- Traffic infiltration to adjacent neighbourhoods is projected to be minor; in some cases, the volumes decrease under the Transform Yonge scenarios. There are few connection points from which infiltration could occur;
- At Sheppard Avenue, restrictions on the north/south left turns will assist in maintaining effective traffic progression; and
- Impacts have been assessed for the Highway 401 ramps, mainline and ramp terminals. Volume changes on the Yonge Street ramps are not projected to increase beyond the levels seen under the Do-Nothing scenario.

Given these minor impacts, no further mitigations are expected to be needed, beyond those cited above.

Pedestrian and cyclist operations will be improved in terms of safety, security and continuity, based on the reduced crossing distances for pedestrians and the provision of physically separated cycle tracks.

Exhibit 7-1: Potential Traffic Mitigation Measures for Consideration

Issue Location and Movement(s) of Concern	Potential Mitigation
Yonge Street at Elmhurst Avenue/Greenfield Avenue - LOS F for WBL, NBL	• provide advanced northbound left-turn phase (currently operating with permissive control only) • extend left-turn storage lane length
Yonge Street at Finch Avenue - LOS E for WB approach	• provide additional green time for the E-W movement • provide westbound right-turn lane
Yonge Street at Hendon Avenue/Bishop Avenue - LOS E/F for EB and WB approaches	• provide advanced eastbound and westbound left-turn phases • provide left-turn lane for the westbound approach and right-turn lane for the eastbound approach • potential widening of Drewry Avenue and Hendon Avenue to four-lane cross-section
Yonge Street at Drewry Avenue/Cummer Avenue - LOS E/F for EB, WB, and SB approaches	• provide advanced green phase for eastbound left-turn • provide eastbound and westbound right-turn lanes • extend eastbound and westbound left-turn storage lengths • potential widening of Drewry Avenue to four-lane cross-section
Doris Avenue at Sheppard Avenue - LOS F for EBL, WBR	• convert westbound shared through/right-turn lane to a right-turn only lane • provide additional green time to the eastbound advanced left-turn phase
Doris Avenue at Greenfield Avenue - LOS E for SB approach	• add left-turn lanes for both northbound and southbound approach with advanced green phase • provide southbound right-turn lane

Issue Location and Movement(s) of Concern	Potential Mitigation
Doris Avenue at Empress Avenue - LOS F for WB approach - LOS F for SBL, SBR	• add westbound left-turn lane • increase cycle time and allocate more green time to both E-W and N-S directions • provide advanced left-turn phase in the southbound direction
Beecroft Road at Hendon Avenue - LOS F for EB approach, LOS E for WB approach	• add traffic signal at this intersection (assuming that Hendon Avenue does not have a cul-de-sac at this location)

Transit Mitigation

Based on the Aimsun model runs, the following transit mitigation measures have the potential to improve TTC operations. These are recommended for implementation as the project proceeds, based on discussions with the TTC:

1. The changes to Doris Avenue and Beecroft Road cited in **Exhibit 7-1** above should be implemented before the design changes to Yonge Street, to assist in diversion of traffic;
2. Maintaining the northbound bus-only lane from the Pemberton Avenue bus terminal exit onto Yonge Street. The critical design aspect of the northbound bus-only lane is that it be designed such that buses do not need to encroach into the adjacent traffic lane while negotiating the westbound right turn. This will allow buses to complete the maneuver even when traffic is moving – or queued – in the adjacent traffic lane. (Note that this has been included in the design for Yonge Street);
3. Maintaining three southbound general purpose lanes south of Bishop Avenue /Hendon Avenue (with the curb lane changing to an exclusive right turn lane (buses excepted) at Finch Avenue, and dropping the southbound HOV lane further north. This will reduce southbound through queues at Bishop Avenue / Hendon Avenue, which will better facilitate the merging of southbound buses across through lanes into the southbound left turn lane at Bishop Avenue / Hendon Avenue;
4. Signal optimization on Yonge Street between Steeles Avenue and Finch Avenue; and
5. The signal timing/transit signal priority scheme for the intersection of Yonge Street and Bishop Avenue should be revised to better reflect actual operation. A 4-second “stretch time” exists for buses after they pass the cancel loop, and all

left-turning traffic can extend the phase to a maximum 22-second green. Lengthening of the maximum green should be introduced if needed in future.

7.5 Utilities

Further consultation with impacted local utility providers will be pursued during detailed design to confirm the location/type of utility installations, the potential project impact, and mitigation and/or utility relocation.

7.6 Construction Staging

Preliminary construction staging plans have been developed for Yonge Street, taking into consideration the important role of the street in the transportation network and community. Construction is anticipated to be completed in a number of stages (refer to **Section 6.4.1**). The following mitigation measures are recommended prior to and during construction:

- Maintain two lanes of traffic in both the northbound and southbound directions on Yonge Street, as much as possible during construction;
- Maintain access for emergency vehicles during construction;
- Access to local businesses and municipal offices will be maintained at all times, and the City will establish a business liaison during construction;
- Advance road signage notifying motorists and the community of the construction will be provided prior to the start of construction and before each construction phase; and
- Alternate routes should be identified for cyclists.

The proposed construction staging schemes are to be reviewed and further refined during the next design phase.

7.7 Summary of Identified Concerns and Mitigation / Commitments to Future Work

Exhibit 7-2 summarizes the identified concerns and the proposed mitigation measures, based on the identified environmental sensitivities and the proposed preliminary design plan. The proposed improvements to Yonge Street may be subject to minor refinements during the development of the detailed design. Any potential refinements, however, are not anticipated to increase impacts to the identified concerns.

Exhibit 7-2: Summary of Identified Concerns and Proposed Mitigation / Commitments to Future Work

LEGEND

BAO: Bereavement Authority of Ontario	MUN: City of Toronto
EMS: Emergency Service Providers	UTIL: Utilities
MECP: Ministry of Environment, Conservation and Parks	RES/BUS: Local Residents and/or business owners
MHSTCI: Ministry of Heritage, Sport, Tourism, and Culture Industries	TPA: Toronto Parking Authority
NDMNRF: Ministry of Northern Development, Mines, Natural Resources and Forestry	Transit Authorities: GO Transit / Metrolinx, TTC, VIVA / YRT
MTO: Ministry of Transportation	

Environmental Issue / Concern	Concerned Agencies	Proposed Mitigation / Commitments to Future Work
CONSULTATION / ENGAGEMENT		
General environmental impacts.	MUN All Stakeholders	• Carry out ongoing consultation with stakeholders, agencies, property owners and the general public during detailed design. • Following construction, carry out an education program to assist users on how to use the redesigned street through either website / brochure / other media. • In conjunction with the City's Public Consultation Unit (PCU), the Contractor should notify adjacent property owners (i.e., residents, businesses, etc.) in advance of construction.
NATURAL ENVIRONMENT		
Terrestrial Ecosystems (See Sections 7.1.1 to 7.1.3 for further details)		
• Removal of street trees and adjacent vegetation • Tree roots that may be exposed during construction	MUN MECP NDMNRF	*General* • Environmental inspections shall be conducted during construction to ensure that protection measures are implemented, maintained and repaired and that remedial measures are initiated where warranted. • If the construction activities are such that continuing construction in an area would result in a contravention of the *Migratory Bird Convention Act* (*MBCA*) (e.g. disturbing nesting migratory birds), all activities would stop and the Contract Administrator will develop and implement a mitigation / monitoring plan for the nest site. *Wildlife* • The Contractor must abide by the *Migratory Birds Convention Act* (MBCA) (1994). • Vegetation clearing and removal of street trees should occur before April 1st or after August 31st to lessen the chance of disturbing nesting migratory birds. • If the construction activities are such that continuing construction in an area would result in a contravention of the MBCA (e.g. disturbing nesting migratory birds), all activities would stop and the Contract Administrator will develop and implement a mitigation / monitoring plan for the nest site. • Any wildlife incidentally encountered during construction shall not knowingly be harmed and shall be allowed to move away from the construction area on its own if at all possible. In the event that wildlife encountered during construction does not move from the construction zone, the Contract Administrator shall be notified and shall instruct an Environmental Inspector to move the animal to a safe area. • If vegetation clearing or grubbing occurs during the breeding bird period (generally April 1st to August 31st), this activity shall be preceded by a bird nest survey conducted by a qualified biologist to ensure no active nests (with eggs or young) are disturbed. *Species at Risk* • It is recommended that the NDMNRF and MECP be contacted during detailed design to confirm / update the list of species at risk (SAR) with potential to be present within the study area.

Environmental Issue / Concern	Concerned Agencies	Proposed Mitigation / Commitments to Future Work
		• All construction site staff shall know how to identify SAR that could occur in the area and shall follow the protocol established for addressing and reporting SAR species that are found in the construction area. • If a SAR is encountered within or adjacent to the construction site, the Contractor will advise the Contract Administrator, who will contact the City's Project Manager for direction. *Vegetation* • Update the tree inventory during detailed design. • During detailed design, consult with Urban Forestry to define trees and shrubs to be planted in the median and in boulevards. • Develop a tree protection plan during detailed design. • Some of the impacts can be mitigated by minimizing the encroachment of construction activities into manicured lawns along Yonge Street as much as possible. • Tree protection fencing is recommended to be erected at the minimum tree protection distances required to protect trees that will be retained from construction activities. • Should any work be required within a minimum Tree Protection Zone, the Contract Administrator shall be notified and this work shall be done so in accordance with the guidelines in this report under 'Work within a Tree Protection Zone' and 'Tree Preservation / Mitigation Measures'. • All Ash trees within the study area shall be removed and in accordance with Canadian Food Inspection Agency regulations. • All tree removals shall be compensated with the replacement policies within the City's Tree Protection By-laws. • Due to the potential impacts to roots that may be exposed during construction, it is recommended that the roots be pruned cleanly, abiding by the guidelines in the City's Pruning Practices' and 'Branch Pruning Practices'.
Erosion and Sediment Control (See Section 7.1.1 for further details)		
• Erosion and sediment control measures will be implemented adjacent to manicured lawns during construction to prevent sediment laden runoff.	MUN MECP	• All Erosion and Sediment Control (ESC) measures are to be inspected and maintained by the Contractor to ensure they are functioning as intended throughout the construction period.
Landscape (See Section 7.1.5 for further details)		
• Vegetation removals could impact the existing landscape. • Opportunities to add landscaping along Yonge Street.	MUN Area residents	• Subject to further consultation with the City's Urban Forestry department during detailed design, it is also recommended that native trees and shrubs are planted in the landscaped median and along Yonge Street. • A tree protection plan and landscape plan shall be developed during detailed design to protect trees and to replant street trees and landscapes to enhance the public realm.
Drainage (See Section 7.1.6 for further details)		
• Positive drainage has been provided in the design throughout the Yonge Street right-of-way.	MUN	• The grading and stormwater calculations will be further refined to ensure the recommended plan complies with the drainage requirements of the City of Toronto
Contamination and Waste Management (See Section 7.1.7 for further details)		
• Areas have been identified within the study area where the high and moderate potential for contamination may be present, these sites may or may not be impacted by construction. • Proper techniques should be used for disposal of excess material and waste.	MUN MECP	• Vehicular and equipment maintenance and refueling shall be undertaken in designated areas a minimum of 30 m from any watercourse / waterbody and shall be controlled to prevent any discharge of equipment fuels and fluids onto the ground or into watercourse / waterbody. • Machinery must arrive on site in a clean condition and maintained free of fluid leaks. • Phase Two Environmental Site Assessments (ESA) shall be completed in detail design to determine the soil and groundwater quality at the locations with medium and high potential for environmental concern and any mitigation measures (e.g. soil or groundwater management plan) required during construction.

Environmental Issue / Concern	Concerned Agencies	Proposed Mitigation / Commitments to Future Work
		• Excess materials (e.g. asphalt, signs, street trees, planters, concrete, etc.) will be sorted and either reused if feasible, recycled, or disposed of at an approved landfill facility in accordance with standard construction mitigation measures. The types and quantities of these materials will be determined during the subsequent detailed design.
Air Quality (See Section 7.1.8 for further details)		
• An air quality assessment study was undertaken which determined that significant effects are not anticipated during operations. • Some minor impacts (construction equipment emissions and dust) are anticipated during construction.	MUN MECP Area Residents	• Standard construction practices for the control of dust will be implemented during construction to minimize the generation and spread of dust. • Implementation of Construction Code of Practice, operating procedures such as application of dust suppressants, efficient staging of construction activities and minimization of haul distances, covering up stockpiles, etc. • The construction tendering process should include requirements for implementation of an emissions management plan within the umbrella of the Environmental Management Plan. • The use of dust suppressants to ensure dust is effectively managed and kept to a minimum. • The use of reformulated fuels, emulsified fuels, exhaust catalyst and filtration technologies, cleaner engine repowers, and new alternative-fueled trucks to reduce emissions from construction equipment. • Regular cleaning of construction sites and access roads to remove construction-caused debris and dust. • Ensure loads hauling fine-grained materials are covered. • Compliance with posted speed limits and, as appropriate, further reductions in speeds when travelling sites on unpaved surfaces. • Restrictions on the idling of construction equipment unnecessarily should be kept to a minimum. • Environmental Compliance Approvals (ECAs) from the MECP and appropriate dust controls/suppression for any portable crushers, asphalt plants or concrete batching plants.
SOCIO-ECONOMIC ENVIRONMENT		
Property Requirements (See Section 7.2.2 for further details) and Property Accesses		
• Property is not required to complete the proposed works along Yonge Street. • Impacts to property access.	MUN Area residents	• The need for temporary limited interests (TLIs) for construction staging will be reviewed in more detail during the detailed design phase. • Impacts to access for businesses and emergency service providers during construction will be minimized. • Property owners and businesses shall be provided advanced notification if access will be impacted during construction.
Public Art (See Section 6.2.4 and Section 7.2.3 for further details)		
• The proposed work will require the relocation of existing public art, including the “Dance” which is installed in the landscaped median.	MUN Area residents	• A Public Art Strategy will be developed for this civically important corridor. • The City’s Public Art Conservator will seek the artist’s, Robert Sprachman, involvement in the relocation processes. • The City’s Public Art Conservator supervises the move and is included in the selection of the art mover/installer. • The sculpture must be moved with its platform intact to the new location. • The "mini dancers" currently located on the various planters beside the main sculpture, should be removed from the existing planters and reinstalled on the new planters in their same orientation.
Public Realm Design		
• A Public Realm Plan should be developed for this civically important space at Mel Lastman Square, integrating the space with the street for civic and other events. • Appropriate locations for bike-share stations should be identified throughout the corridor.	MUN	• As part of detailed design, a Public Realm Plan should be developed for the Mel Lastman Square area. • The City shall work with the Toronto Parking Authority to identify suitable locations for bike-sharing station(s) and bike parking along Yonge Street. • Street furniture selection and placement/location will be identified in the subsequent detailed design phase.
Noise and Construction Noise (See Section 7.2.4 and Section 7.2.5 for further details)		

Environmental Issue / Concern	Concerned Agencies	Proposed Mitigation / Commitments to Future Work
• The predicted increases in future noise levels are anticipated to be less than 5 dBA for all receiver locations. • Potential for elevated noise levels during construction.	MUN MECP Area residents	• In conjunction with the City's Public Consultation Unit (PCU), the Contractor should notify adjacent property owners (i.e., residents, businesses, etc.) in advance of construction. This should be a staged notification, with the initial notice provided two weeks in advance of construction, then a reminder one week in advance, and a final notification 48 hours before construction begins. • The Contractor shall review the current noise control by-laws from the City of Toronto and determine if an exemption to the City's noise by-law will be required to facilitate construction. Where adherence of the laws is not possible and mitigation is not feasible, an exemption from the City of Toronto shall be obtained before the start of construction work. Based on the recommended plan, a noise bylaw exemption for night work is likely required and will be further reviewed and obtained during the detailed design phase if needed. • The MECP's limits sound emissions from various equipment used during in construction. Sound emission standards for the various types of construction equipment used on the project must be checked to ensure that they meet the specified limits contained in MECP's Publication NPC-115 – "Construction Equipment". • All equipment should be properly maintained to limit noise emissions. As such, all construction equipment should be operated with effective muffling devices that are in good working order. • If complaints regarding construction noise arise from construction, they will be investigated according to the provisions of the MTO's Environmental Guide for Noise. The Contract Documents should contain a provision that any initial noise complaint will trigger verification that the agreed-upon noise control measures are in effect. • Subject to the results of a field investigation, alternative noise control measures may be required, where these are reasonably available. In selecting the appropriate construction noise control and mitigation measures, the Municipality will give consideration to the technical, administrative, and economic feasibility of the various alternatives.
Business Community (See Section 7.2.6 for further details)		
• The business community could be impacted by changes in access during construction.	MUN RES/BUS	• Consult with the business community regarding construction staging, parking and public realm. • Appoint a liaison to work with the community during construction. • Consider means of expediting construction such as lane rental systems.
CULTURAL ENVIRONMENT		
Archaeological Resources (See Section 7.3.1 for further details)		
• A Stage 1 Archaeological Assessment was undertaken which indicated that the existing roadway and pedestrian clearway hold low archaeological potential due to extensive urban development.	MUN MHSTCI BAO	• A licensed archaeologist shall be onsite during all sub-surface excavations within 10 m of the Willowdale Cemetery boundaries to monitor construction activities and ensure that no unmarked graves are impacted during development. • A Cemetery Investigation Authorization may be required for any archaeological assessment activities adjacent to Willowdale Cemetery. This shall be determined in consultation with the Ministry of Heritage, Sport, Tourism and Culture Industries and the Bereavement Authority of Ontario. • Should deeply buried archaeological materials be encountered during construction, all work should be stopped and a professionally licenced archaeologist consulted to assess the cultural heritage value and significance of the archaeological deposits. • Should the proposed work extend beyond the current Study Area, further Stage 1 Archaeological Assessment may be required to evaluate the archaeological potential of the surrounding lands and to provide recommendations.
Built Heritage and Cultural Heritage Landscapes (See Section 7.3.2 for further details)		
• Direct or indirect impacts to built heritage resources and cultural heritage landscapes have not been identified.	MUN MHSTCI	• The existing built heritage resources and cultural heritage landscapes within the study limits shall be confirmed and reviewed and appropriate external agencies contacted in detailed design to confirm and identify any changes or additional heritage resources or landscapes since the completion of the Preliminary Design. • Prior to construction, the Contractor must become familiar with the identified cultural heritage resources and landscapes on and adjacent to the area of the undertaking, as well as any corresponding setbacks implemented by the City of Toronto.

Environmental Issue / Concern	Concerned Agencies	Proposed Mitigation / Commitments to Future Work
		• During construction and after the completion of construction activities, the City of Toronto Heritage Planning staff should inspect the property to confirm that there are no unanticipated adverse impacts on the cultural heritage resources. • Design and locate new infrastructure required along routes with the largest setback from heritage buildings (center of right-of-way within roadway) wherever possible.
ENGINEERING		
Emergency Vehicle Response (See Section 7.4.1 for further details)		
• Emergency Service Vehicles may experience delays during construction.	MUN EMS Area Residents	• The Project Team will continue to consult with provincial and municipal emergency service providers in detailed design, with respect to features that can promote efficient response, such as rolled curbs and breaks in the median. • Traffic will be maintained on Yonge Street during construction with minor, temporary short-term closures during off-peak hours. • Advance notification will be provided to inform emergency service providers of construction and any lane closures.
Parking (See Section 7.4.2 for further details)		
• A parking mitigation strategy was developed and specific locations were identified for parking on the east-west streets and Yonge Street.	MUN TPA Area Residents	• The Project Team will continue to consult with Toronto Parking Authority in detailed design regarding locations for on-street parking • Additional consultation sessions will be held during detailed design to present the proposed locations on the east-west streets and Yonge Street. • To permit parking on the east-west side streets, an amendment to the existing by-law is required and will be pursued during detailed design. • Define locations for bike parking and bike-share stations during detailed design.
Illumination (See Section 7.4.3 for further details)		
• Potential for light spillage from the additional illumination along Yonge Street. • Potential for enhancement of the public realm design • Potential for increased sustainability and functionality through design	MUN Area Residents	• The extent of the additional illumination along Yonge Street will be confirmed in the detailed design phase. This review should also address potential for enhanced sustainability, increased functionality (i.e. “smart” lighting) and public realm opportunities. • Should new, additional illumination be required, the use of luminaire shields and photometrics and the locations of the light poles should all be reviewed to mitigate light pollution such as light trespass onto private properties and glare.
Traffic and Transit (See Section 7.4.4 for further details)		
• Impacts to traffic and transit services	MUN Area Residents TTC	• **Exhibit 7-1** outlines potential mitigation measures identified for intersections where large increases in queue length are projected, including Yonge Street at Drewry Avenue, Elmhurst Avenue/Greenfield Avenue, and Florence Avenue/Avondale Avenue. These should be considered during the next design phase. • Based on the Aimsun model runs, the following transit mitigation measures have the potential to improve TTC operations. These are recommended for implementation as the project proceeds, based on discussions with the TTC: 1. The changes to Doris Avenue and Beecroft Road cited in **Exhibit 7-1** should be implemented before the design changes to Yonge Street, to assist in diversion of traffic; 2. Maintaining the northbound bus-only lane from the Pemberton Avenue bus terminal exit onto Yonge Street. The critical design aspect of the northbound bus-only lane is that it be designed such that buses do not need to encroach into the adjacent traffic lane while negotiating the westbound right turn. This will allow buses to complete the maneuver even when traffic is moving – or queued – in the adjacent traffic lane. (Note that this has been included in the design for Yonge Street); 3. Maintaining three southbound general purpose lanes south of Bishop Avenue /Hendon Avenue (with the curb lane changing to an exclusive right turn lane (buses excepted) at Finch Avenue, and dropping the southbound HOV lane further north. This will

Environmental Issue / Concern	Concerned Agencies	Proposed Mitigation / Commitments to Future Work
		reduce southbound through queues at Bishop Avenue / Hendon Avenue, which will better facilitate the merging of southbound buses across through lanes into the southbound left turn lane at Bishop Avenue / Hendon Avenue; 4. Signal optimization on Yonge Street between Steeles Avenue and Finch Avenue; and 5. The signal timing/transit signal priority scheme for the intersection of Yonge Street and Bishop Avenue should be revised to better reflect actual operation. A 4-second "stretch time" exists for buses after they pass the cancel loop, and all left-turning traffic can extend the phase to a maximum 22-second green. Lengthening of the maximum green should be introduced if needed in future.
Utilities (See Section 7.5 for further details)		
• There are potential conflicts with the existing utility locations.	MUN TTC UTIL	• Further consultation with the utility agencies will be pursued during detailed design, to confirm the location/type of utility installations, the potential project impact, and mitigation and/or utility relocation • Special provisions will be included in the Contract to ensure that care and precautions are taken to safeguard existing utilities from damage during construction.
Construction Staging (See Section 7.6 for further details)		
• Motorists may experience delays and disruption during construction.	MUN MTO Area Residents	• A preliminary staging plan will be prepared to minimize impacts to the road users and ensure a safe work zone during the construction phase. • Maintain two lanes of traffic in both the northbound and southbound directions on Yonge Street, as much as possible during construction. • Access for emergency vehicles will be maintained during construction. • Access to local businesses will be maintained at all times, and the City will establish a business liaison during construction. • Advance road signage notifying motorists and the community of the construction will be provided prior to the start of construction and before each construction phase. • Alternate routes should be identified for cyclists.

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Appendix A: Natural Environment Memo

Appendix B: Arborist Reports

Appendix C: Air Quality Screening Assessment

Appendix D: Noise Report

Appendix E: Stage 1 Archaeological Assessments

Appendix F: Heritage Overview Report

Appendix G: Traffic Analysis and Modelling Summaries

Appendix H: Public Consultation Record

Appendix I: Stakeholder Consultation Record

Appendix J: Indigenous Community Engagement Record

Appendix K: Recommended Plan